
Oregon Investment Council

June 7, 2017
9:00 AM

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

Rukaiyah Adams
Chair

John Skjervem
Chief Investment Officer

Tobias Read
State Treasurer





OREGON INVESTMENT COUNCIL

Agenda

June 7, 2017
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>
9:00-9:02	1. Review & Approval of Minutes April 26, 2017	Rukaiyah Adams <i>OIC Chair</i>	1
9:02-9:10	2. Committee Reports and CIO Remarks	John Skjervem <i>Chief Investment Officer</i>	2
9:10-9:25	3. Strategic Asset Allocation Policy Revision & Capital Market Assumptions Update <i>OPERF</i>	Karl Cheng <i>Investment Officer, Portfolio Risk & Research</i>	3
9:25-10:15	4. Common School Fund <i>Annual Review</i>	Paola Nealon <i>Investment Officer, Public Equity</i> Jim Paul <i>Director, Department of State Lands</i> Jim Callahan <i>Callan Associates</i>	4
<u>B. Information Items</u>			
10:15-10:30	5. Q1 2017 Performance & Risk Report <i>OPERF</i>	Karl Cheng Uvan Tseng <i>Callan Associates</i>	5
10:30-10:45	----- BREAK -----		

10:45-11:15	6. Corporate Governance Update <i>Annual Report</i>	Michael Viteri <i>Senior Investment Officer, Public Equity</i> Jennifer Peet <i>Director of Legal Affairs</i> Aaron Bertinetti <i>Vice President of Research and Engagement, Glass Lewis</i>	6
11:15-11:35	7. OST Investment Operations Update <i>OPERF & Other OST-managed Accounts</i>	David Randall <i>Director of Investment Operations</i> Debra Day <i>Investment Reporting Manager</i> Ron Allen <i>Managing Director, Blackrock Solutions</i>	7
11:35-11:40	8. Asset Allocation & NAV Updates a. Oregon Public Employees Retirement Fund b. SAIF Corporation c. Common School Fund d. Southern Oregon University Endowment Fund	John Skjervem	8
	9. Calendar — Future Agenda Items	John Skjervem	9
11:40-12:30	10. Joint OIC/PERB Discussion	Council and PERB Members	10

C. Public Comment Invited

5 Minutes

TAB 1 – REVIEW & APPROVAL OF MINUTES

April 26, 2017 Regular Meeting



STATE OF OREGON
OFFICE OF THE STATE TREASURER
16290 SW UPPER BOONES FERRY ROAD
TIGARD, OREGON 97224

OREGON INVESTMENT COUNCIL
APRIL 26, 2017
MEETING MINUTES

Members Present: Rukaiyah Adams, Tobias Read, John Russell, Rex Kim, Rick Miller and Steve Rodeman

Staff Present: Darren Bond, John Skjervem, John Hershey, Perrin Lim, Deena Bothello, Karl Cheng, May Fanning, Michael Langdon, Jen Plett, Jen Peet, James Sinks, Michael Viteri, Tony Breault, Amanda Kingsbury, Austin Carmichael, Dana Millican, Ricardo Lopez, Jo Recht, Mark Selfridge, Ben Mahon, Kim Olson, John Hersehy, Debra Day, Tom Lofton, Chelsea Brossard, Garrett Cudahey, Angela Schaffers, Eric Messer, David Randall, Paola Nealon, Kim Olson, Priyanka Shukla, Roy Jackson, Debra Day, Jackie Steffens, Ben Mahon, Mike Mueller, Amy Wojcicki, Dmitri Palmateer

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

Legal Counsel Present: Dee Carlson, Oregon Department of Justice

The April 26th, 2017 OIC meeting was called to order at 9:00 am by Rukaiyah Adams, OIC Chair.

I. 9: 00am Review and Approval of Minutes

MOTION: Mr. Russell moved approval of the March 15, 2017 OIC meeting minutes, and Mr. Kim seconded the motion which then passed by a 5/0 vote.

II. 9:27 am Committee Reports and CIO Update

Committee Reports: John Skjervem, OST Chief Investment Officer gave an update on the following committee actions taken since the March 15, 2017 OIC meeting:

Private Equity Committee

None

Alternatives Portfolio Committee

None

Opportunity Portfolio Committee

None

Real Estate Committee

None

Mr. Skjervem then made opening remarks which included comments on the OPERF Currency Project presented at the March OIC meeting as well as context for both the immediately succeeding OPERF Strategic Asset Allocation and Alternatives Portfolio Review presentations.

III. 09:14 am Morgan Stanley Prime Property Fund - OPERF Real Estate Portfolio

Tony Breault, Senior Investment Officer, Real Estate, recommended a capital commitment of up to \$250 million to the Morgan Stanley Prime Property Fund (MSPPF or the Fund). This proposal represents a new relationship with Morgan Stanley on behalf of the OPERF real estate portfolio.

Morgan Stanley, founded in 1935, is a global financial services firm focused on securities underwriting, asset management, and wealth management activities, and maintains significant market positions in each of these business segments. Morgan Stanley Investment Management (MSIM) has more than \$406 billion in assets under management across multiple geographies, strategies, and asset classes, including equity, fixed income, alternatives, and private markets.

The selection of MSPPF for OPERF's real estate portfolio was the result of an analysis during which Staff and consultant evaluated all 24 funds currently included in the NFI-ODCE Index. Specifically, Staff and PCA reviewed each fund's underlying assets, performance characteristics, sector and geographic exposures, and historical returns. An in-depth performance assessment was then conducted over different investment horizons using simulated bull and bear market conditions, while also comparing volatility and Sharpe ratios relative to the index.

MSPPF is an Open-Ended Diversified Core Equity (ODCE) fund, and, at \$20.9 billion GAV (\$17.5 billion NAV), is the fourth largest fund within the index comprising approximately 11% of current index capitalization. The Fund is managed to maintain a diversified portfolio of U.S. commercial real estate that offers stable, highly predictable cash flow returns. Product focus within the Fund is primarily on high-quality office buildings, Class A multifamily communities, warehouse distribution and storage facilities, and top-tier regional malls and shopping centers in targeted primary markets across the U.S.

MOTION: Mr. Russell moved approval, and Mr. Kim seconded the motion which then passed by a 5/0 vote.

9:55 am Strategic Asset Allocation & Capital Market Assumptions Update – OPERF

In connection with OIC's Strategic Asset Allocation policies, Karl Cheng, Investment Officer, Portfolio Risk & Research introduced Janet Becker-Wold and Jim Callahan from Callan Associates and Allan Emkin from Pension Consulting Alliance who in turn provided their firms' respective capital market assumptions forecasts.

Mr. Cheng then asked Council members to approve OPERF's Statement of Investment Objectives and Policy Framework to reflect the conclusions of and content from the Callan and PCA presentations.

MOTION: Mr. Kim moved approval of staff's recommendation to maintain OPERF's existing asset allocation targets and ranges. Treasurer Read seconded the motion which then passed by a 5/0 vote.

The Council then directed staff to further revise INV 1203 to disaggregate estimates of *ex ante* asset class returns between the systematic or "beta" component and the expected value-added or "alpha" component.

IV. 11:39 am State Accident Insurance Fund – Annual Review

Perrin Lim, Director of Capital Markets introduced the SAIF Corporate Annual Update and presenters Kerry Barnett, President & CEO and Gina Manley, Vice President, Finance & CFO of State Accident Insurance Fund (SAIF). This presentation covered the annual business and operating update for their organization, and notified the Council that SAIF management will conduct an asset/liability analysis in the coming year.

V. 11:56 am Policy Updates – OPERF and other OST-managed Accounts

Kim Olson, Senior Policy Advisor presented OIC members with another tranche of policy updates in a continuation of the process that commenced in September 2015 with the objective of conforming all OST policy documents to Treasury's new PolicyStat application.

MOTION: Treasurer Read moved approval, and Mr. Russell seconded the motion which then passed by a 5/0 vote.

- VI. 11:59 am Alternatives Portfolio Review – OPERF**
Ben Mahon, Senior Investment Officer, Alternatives provided the OIC with an update on the OPERF Alternatives Portfolio that included a review of historical performance, 2016 investment activity and staff's 2017 plans.
- VII. 12:18 pm Opportunity Portfolio Review – OPERF**
John Hershey, Director of Alternative Investments delivered a 2015-2016 review of the OPERF Opportunity Portfolio that included a review of historical performance and outlined areas of potential investment emphasis going forward.
- VIII. 12:41 pm Asset Allocation & NAV Updates**
Mr. Skjervem reviewed asset allocations and NAVs across OST-managed accounts for the period ended March 31, 2017.
- IX. 12:42 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. 12:43 pm Open Council Discussion**
Chair Adams introduced this new agenda item with expectations that it might provide a platform for Council members to share thoughts, concerns and ideas about matters relating to the Oregon Investment Council and its fiduciary responsibilities.
- 12:52 pm Public Comments**
None

Ms. Adams adjourned the meeting at 12:52 pm.

Respectfully submitted,


May Fanning

Executive Support Specialist

TAB 2 – Committee Reports and CIO Update

Opening Remarks

John D. Skjervem, Chief Investment Officer

June 7, 2017



Oregon State Treasury

June 7, 2017 OIC Meeting

OPERF Strategic Asset Allocation

- Additional, substantive policy revisions
- Alpha/Beta separation
- Formalize segregation of responsibilities between OIC and PERB

CSF Update

- Harmonized policy last OIC meeting
- Expand diversification profile this meeting

Operations Update

- Multi-dimensional and transformational
- Paying Immediate Dividends

TAB 3 – Strategic Asset Allocation Policy & Capital Market

Assumptions Updates

OPERF

PURPOSE

1. 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.
2. The Council approved these objectives and framework after careful consideration of OPERF benefit provisions, and the implications of alternative objectives and policies.
3. 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"); 3) the Public Employees Retirement Board ("PERB"); 4) active and retired Oregon Public Employees Retirement System (OPERS) members; 5) the Oregon State Legislature and Governor; and 6) agents engaged by the Council to manage and administer Fund assets.
4. 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.
5. 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.
2. 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).
3. 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*.
4. 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 approved the asset mix policy presented in Exhibit 1 for the OPERF Regular Account. The Council's total fund asset mix policy is also summarized in Exhibit 1, while 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.
3. 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.
4. 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 (%)	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.

5. 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.
6. 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.
7. 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.

8. 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.
9. 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.

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. Exchange-traded *real estate investment trusts (REITs)* may also be used to maintain the Fund's real estate exposure within specified policy ranges.
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 0.75% 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. 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.
7. 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	0.75	0.28
Fixed Income	20.0	0.25	0.05
Real Estate	12.5	0.50	0.07
Total Fund			0.40

PUBLIC EQUITY STRATEGY

1. OPERF's public equity allocation is managed with the objective of earning at least **75 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. 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.
 - d. 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. Aggregate exposures to countries, economic sectors, investment styles and market capitalization tiers are monitored and managed relative to corresponding benchmark exposures.

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 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.
 - b. 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.
 - c. Fixed income managers are selected for their skills in issue selection, credit analysis, sector allocations and duration management.
 - d. Aggregate exposures to duration, credit and sectors are monitored and managed relative to corresponding exposures in the fixed income allocation benchmark.

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. 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%. 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. 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. *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.

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.
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.

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.
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 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.
 - c. *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. *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. *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.

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.
2. 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?
3. 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.
4. 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.
5. 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

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 7.5%.

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 conform to the following 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 conform to the following 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 remaining maturities of more than one year. Its constituents must conform to the following 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: One basis point equals 0.01%. One hundred basis points equal 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 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 defined by the NPI;
- No more than 40% leverage; and
- Compliance with the NCREIF/PREA Reporting Standards.

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 (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 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). 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.

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 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 that excludes the Variable Account. 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 Variable Annuity Program (VAP) 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.

PURPOSE

1. 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.
2. The Council approved these objectives and framework after careful consideration of OPERF benefit provisions, and the implications of alternative objectives and policies.
3. The Statement has been prepared with ~~six~~ audiences in mind: 1) incumbent, new and prospective Council members; 2) Treasury 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 (OPERS) members; 5) the Oregon State Legislature and Governor; and 6) agents engaged by the Council to manage and administer Fund assets.
4. The Statement summarizes more detailed policy and procedure documents prepared and maintained by investment division the staff of the ~~Oregon State Treasury ("OST")~~, 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.
5. 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. Subject to ORS 293.721 and 293.726, the investment objective for the *Regular Account* is earning, over rolling, consecutive twenty-year periods, an annualized return that equals or exceeds the actuarial discount rate (ADR) approved by the Public Employees Retirement Board (PERB) and used to value OPERF liabilities.~~
- ~~2.1. The Council believes, based on the assumptions outlined herein, that the investment policies summarized in this document will provide the highest probability of achieving this objective, possible return at a level of risk that is acceptable to 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. (specifically, the probability of not achieving the actuarial discount rate (ADR) over a consecutive, twenty-year time horizon.)~~
- ~~2. Subject to ORS 293.721 and 293.726 and the risk parameters described directly above, the investment 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 earning 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) an annualized return that equals or exceeds the ADR approved by the Public Employees Retirement Board ("PERB") and used by PERB actuaries to value OPERF liabilities. The return projection period comprises a consecutive, twenty-year time horizon that matches the period PERB and its actuaries consider in their analyses.~~
3. 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*.

- The Council has established investment objectives for individual asset classes that are also summarized in this Statement.

POLICY ASSET MIX, ~~RISK~~ DIVERSIFICATION AND RETURN EXPECTATIONS

- 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 approved the asset mix policy presented in Exhibit 1 for the OPERF Regular Account. ~~The Council's total fund asset mix policy~~ and is also summarized in Exhibit 1, while its active management return expectations are ~~also~~ summarized in Exhibit ~~1-2~~.
- Of ~~its~~ 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* and *real estate assets* and *alternatives asset classes*, the Council ~~is managing~~ manages and ~~diversifying~~ diversifies the Fund's overall risk.
- Specific asset class exposures are maintained within the ranges outlined in Exhibit 1. ~~At a 7.6% expected annual return, the Fund has a 50% probability of earning an annualized return equal to or exceeding its actuarial discount rate over a consecutive 20-year horizon or, approximately, the next two to three market cycles.~~

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

<u>Asset Class</u>	<u>Target Allocation (%)</u>	<u>Re-balancing Range (%)</u>	<u>Expected Annual Policy Return (%)</u> ¹
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 Fund ²	100.0		7.1
Asset Class Target	Re- Allocation	Expected Re- balancing	Expected Annual
		Expected Annual	Expected Annual

	(%)	Range (%)	Policy Return ¹ (%)	Active Management Return (net of fees) (%)	Total Return (%)
Public Equities	37.5	32.5-42.5	7.8	0.75	8.6
Private Equity	17.5	14-21	10.2	0.7	10.9
Total Equity	55	50-60	-	-	-
Fixed Income	20	15-25	3.0	0.25	3.34
Real Estate	12.5	9.5-15.5	7.0	0.50	7.5
Alternatives	12.5	0-12.5	6.4	0.5	6.9
Total Fund	100	-	7.0	0.6	7.6

¹ Based on capital market forecasts developed by the Council's investment consultant, Callan Associates, ~~for the next two to three market cycles.~~

² Total Fund expected returns are ~~simply 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 averages~~ average of ~~the~~ individual asset class returns. ~~The policy mix's geometric mean return expectation is approximately 7.9%.~~ – listed in Exhibit 1.

5. The policy mix's 7.61% 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 ~~over shorter time periods, actual~~ realized returns can deviate significantly from expectations – both positively and negatively.
- ~~6. U.S. equity, non-U.S. 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 real estate allocations is expected to earn respectively a 0.75% and a 0.50% per annum return premium 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.~~

~~7.6.~~ The OIC has allocated up to 3.0% of total Fund assets for investment in an *Opportunity*

Portfolio, the objective of which is to ~~provide enhanced OPERF~~ returns and/or ~~better~~ diversification ~~for OPERF~~. 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 ~~will~~ are only ~~be~~ 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.

~~8.7.~~ 8.7. 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.

~~9.8.~~ 9.8. In an effort to minimize cash balances at both the ~~fund~~ 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.

~~10.9.~~ 10.9. 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.

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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. Exchange-traded *real estate investment trusts (REITS/REITs)* may also be used to maintain the Fund's real estate exposure within specified policy ranges.
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 0.75% 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:
~~4.5 Real Estate's policy benchmark is more closely aligned with the strategic objective of the Fund's allocation to this asset class and is an acceptable proxy. Being 100% actively managed and with target exposures to riskier elements of the asset class (see "REAL ESTATE STRATEGY" below), active management of the Fund's real estate allocation is expected to earn annual return premium of 0.50% over rolling, consecutive five-year periods and relative to its benchmark.~~
6. 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.

4.6

7. At the aggregate, ~~level of the~~ Regular Account level, and as outlined in Exhibit 2, active management strategies authorized by the Council are expected to **add 0.64% of annualized excess return**, net of fees, over rolling, consecutive five-year periods, ~~outlined in Exhibit 2.~~ **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

<u>Asset Class</u>	<u>Target Allocation (%)</u>	<u>Target Active Return (%)</u>	<u>Target Active Contribution (%)</u>
Public Equity	37.5	0.75	0.28
Fixed Income	20.0	0.25	0.05
Real Estate	12.5	0.50	0.07
Total Fund			0.40

PUBLIC EQUITY STRATEGY

1. OPERF's public equity allocation is managed with the objective of earning at least **75 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 consistent excess return opportunities and minimizes the Fund's exposure to any single investment organization.
 - c. 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.
 - d. Managers with skills in security selection and country allocation are utilized as these attributes have historically been ~~shown to be~~ 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. Aggregate exposures to countries, economic sectors, investment styles and market capitalization tiers are monitored and managed relative to corresponding benchmark exposures.

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. [At least 70%](#) [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 ~~more~~-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.
 - b. 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.
 - c. Fixed income managers are selected for their skills in issue selection, credit analysis, sector allocations and duration management.
 - d. Aggregate exposures to duration, credit and sectors are monitored and managed relative to corresponding exposures in the fixed income allocation benchmark.

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. 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%. 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. 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. *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.

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.
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.

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.
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 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.

- c. *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. *Diversifying Assets-Strategies* represent 40% of the Fund's alternatives allocation, with a range of 35% to 45%. Diversifying *StrategiesAssets* 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.

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.
2. 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 ~~affected~~ improved benefit security, and has capital market risk in general and active management in particular been sufficiently rewarded?
3. 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.
4. One of many reports used by the Council to satisfy the ~~above~~ requirements ~~of 10.2 above~~ is a simple comparison of Regular Account investment performance relative to the Council's assigned total Fund benchmark ADR over rolling, consecutive ~~multifive~~ five-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.
5. 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 ~~the seven,ix~~, primary asset ~~elass~~-allocation ~~categories~~: U.S. equity; ~~N~~on-U.S. equity; ~~F~~ixed ~~I~~ncome; ~~R~~real ~~E~~state; ~~P~~private ~~E~~quity; ~~and the A~~nd ~~alternatives and Opportunity~~ ~~portfolios~~. Level four examines the performance of individual managers within each of the asset ~~elass~~-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

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 ~~currently~~ 7.755%.

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: ~~At September 30, 2013, this index had a market value of approximately \$1.2 trillion comprised of approximately 2,200 issues. 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. ~~This index tracks and must conform to the performance of publicly issued, U.S. dollar-denominated, following parameters:~~

- ~~Be rated~~ below investment ~~grade corporate debt~~. ~~Qualifying securities must have a 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. ~~In addition, qualifying; 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: ~~At September 30, 2013, this index had a market value of approximately \$16.7 trillion comprised of approximately 8,500 issues. Its constituents are SEC-registered, taxable, dollar-denominated securities.~~ 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. ~~The Aggregate Index was officially launched by the former Lehman Brothers on January 1, 1976, and its constituents~~ Its constituents are SEC-registered, taxable, dollar-denominated securities and must conform to the following 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: At September 30, 2013, this index had a market value of approximately \$6.0 trillion comprised of 236 issues. It~~ This index is a sub-component of the Bloomberg Barclays Aggregate Index and includes Treasuries, or more specifically, public obligations of the U.S. Treasury that have remaining maturities of more than one year. ~~This index is a sub-component of the Barclays Aggregate Index, was officially launched by the former Lehman Brothers on January 1, 1976, and its~~ Its constituents must conform to the following 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: One basis point equals 0.01%. One hundred basis points ~~equal~~ equal 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: ~~one~~ 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, ~~Used most often in a fixed income context.~~ The measure of an organization's ability to re-pay borrowed money. ~~Used most often in a fixed income context.~~ 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 ~~into~~ 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 ~~over~~approximately 9,000 publically-traded equity securities and is designed to measure equity market performance across developed and emerging markets. ~~As of September 2013, this index consisted of 45 separate country indices comprising 24 developed and 21 emerging market countries. The developed market countries included are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom and the United States. The emerging market countries included are Brazil, Chile, China, Colombia, Czech Republic, Egypt, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Morocco, Peru, Philippines, Poland, Russia, South Africa, Taiwan, Thailand and Turkey~~ This index consists of over 40 separate developed and emerging market country indices.

MSCI World Ex-U.S. Index: ~~Same as~~ A subset of the MSCI ACWI-IMI index ~~described directly above, except~~ All Country World Index that contains only securities from developed market countries, excluding those from the U.S. ~~stocks are excluded.~~

Market Capitalization: The value of a corporation as determined by multiplying the price of its shares by the number of shares outstanding. ~~Investors often use market capitalization as an indicator of portfolio risk or volatility.~~ In general, the share prices of smaller capitalized companies are more volatile ~~or risky~~ 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 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 defined by the NPI;
- No more than 40% leverage; and
- Compliance with the NCREIF/PREA Reporting Standards.

Oregon State Treasury: Headed by the State Treasurer ~~as the chief financial officer for the state~~, 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 (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 ~~by position 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 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). 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.

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 in land ~~and/or~~, buildings or other real property.

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

Regular Account: That portion of the Oregon Public Employees Retirement Fund that excludes the Variable Account. 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 7.7550 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 ~~to~~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: ~~At September 30, 2013, this index had a market value of approximately \$622 billion comprised of approximately 800 issuers and over 1,000 loan facilities.~~ The~~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 Variable Annuity Program (VAP) 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 Variable Program 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 Variable Program 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 Variable Program 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.

TAB 4 – Common School Fund
Annual Review

Common School Fund Annual Review

Purpose

Provide the Oregon Investment Council (OIC) with an update on the performance, structure and asset allocation of the Common School Fund (CSF or the Fund) as of December 31, 2016, in accordance with OIC Policy 4.08.07.

About the Common School Fund

The act of Congress admitting Oregon to the Union in 1859 granted nearly 3.4 million acres of the new state's land "for the use of schools." The State Land Board was established to oversee these "school lands" and has been the trustee of the CSF for more than 150 years.

School lands and their mineral resources, submerged and submersible lands underlying the state's tidal and navigable waterways, unclaimed property held in trust, and the proceeds from escheated estates all contribute to the corpus of the fund.

The State Treasurer and OIC invest the Common School Fund. Net of contributions and distributions, the fund has grown from \$1.07 billion in January 2012 to \$1.46 billion at year-end 2016.

CSF Investment Performance

For the five-year period ended December 31, 2016, the CSF earned 9.1 percent on an annualized basis, outperforming its policy benchmark by 28 basis points. Over a one-year period, the CSF portfolio delivered 6.1 percent, but, on a relative basis, lagged its benchmark. Much of last year's shortfall can be attributed to broad-based underperformance in the Fund's allocations to both public and private equity.

Period Ending 12/31/2016	1-Year	3-Year	5-Year
Common School Fund	6.09	4.36	9.13
CSF Policy Benchmark	8.01	4.39	8.85
Excess Return	-1.92	-0.03	0.28

Note: Returns for periods longer than 1-year are annualized.

The CSF investment objective is to deliver long-term investment results that meet the Fund's distribution requirements – currently set at 4% - while allowing its asset base to grow in real (i.e., inflation-adjusted) terms. Over the previous ten years, the Fund returned 4.49 percent on an average, annualized basis, lagging its policy benchmark by 25 basis points but achieving its stated investment objective.

Fixed Income

The two CSF fixed income managers employ an active strategy that seeks to capitalize on the historical premium accruing to spread risk. This strategy generally involves underweighting U.S. Treasury securities, relative to an index, and overweighting corporate debt. Over the past three-, five-, seven- and ten-year periods, aggregate performance for these two managers has exceeded the BC U.S. Aggregate Index, CSF's fixed income policy benchmark.

The strategic role of fixed income securities in CSF is two-fold: 1) provide diversification relative to the Fund's equity security holdings; and 2) provide liquidity in connection with CSF's regular cash distribution obligations. In April 2016, the Fund's fixed income benchmark was changed from the BC U.S. Universal Index to the BC U.S. Aggregate Index. This change was made to reflect the intention that the role of Fund's fixed income allocation was diversification, not return enhancement.

The principal difference between these two fixed income benchmarks is that the BC U.S. Aggregate Index exhibits less volatility (i.e., risk) as it excludes below investment grade (BIG) and emerging market debt in its construction. Commensurate with this lower risk benchmark, the alpha objective for the Fund's fixed income managers was lowered from 50 to 35 basis points.

Exhibit 1 – Fixed Income Managers

Period Ending 12/31/2016	1-Year	3-Year	5-Year
Fixed Income	4.07	3.38	3.61
BC US Aggregate	3.01	2.98	2.60
Excess Return	1.06	0.40	1.01

Note: Returns for periods longer than 1-year are annualized.

Public Equity

Despite positive absolute returns within the domestic public equity portfolio, all CSF active managers underperformed their respective benchmarks. Similar to what staff has observed in OPERF's domestic equity portfolio, consistent long-term excess returns from traditional active management strategies have been difficult to achieve. Accordingly, staff will consider opportunistically restructuring CSF's domestic public equity portfolio to better align the Fund with OPERF and move away from traditional, higher-cost active management strategies. In international markets, and similar to OPERF results, active management strategies have produced favorable benchmark-relative returns for CSF.

For a consolidated (i.e., global) view of CSF's public equity performance, Staff recommends including the capitalization-based MSCI All Country World Index IMI in Fund policy (specifically, INV 903).

Exhibit 2 – Public Equity Managers

Period Ending 12/31/2016	1-Year	3-Year	5-Year
Domestic Equity	9.16	7.21	14.18
Russell 3000 Index	12.74	8.43	14.67
Excess Return	-3.58	-1.22	-0.49
Period Ending 12/31/2016	1-Year	3-Year	5-Year
International Equity	3.76	-0.16	7.92
MSCI ACWI ex US (Net)	4.50	-1.78	5.00
Excess Return	-0.74	1.62	2.92

Note: Returns for periods longer than 1-year are annualized.

Private Equity

Now in its ninth year, the CSF private equity portfolio utilizes predominately OPERF-related general partner relationships, and commitments at year-end 2016 totaled \$305 million. The Fund's first private equity commitments were drawn in late 2007, and at the end of last year, the Fund's private equity portfolio reflected a value multiple of 1.4x and an IRR of 11.7 percent. General partners represented in the portfolio include Apollo, Oak Hill, KKR, TPG Partners, Warburg Pincus, JP Morgan and Oaktree.

Private equity has benefited the CSF, delivering double digit returns over intermediate and long-term time horizons. However, and similar to staff's experience with OPERF's private equity investments, the CSF's private equity benchmark (Russell 3000 Index + 3%) has proved formidable of late.

Exhibit 3 - Private Equity Managers

Period Ending 12/31/2016	3-Year	5-Year	7-Year
Private Equity	11.96	14.68	13.45
Russell 3000+300 bps Quarer Lag	13.73	19.80	16.55
Excess Return	-1.77	-5.12	-3.10

Note: Returns for periods longer than 1-year are annualized.

Asset Allocation

CSF asset allocation is managed relative to a 70/30 equity-to-fixed income target. In 2007, OIC approved a target private equity allocation of 10% for the Fund. The objective of that approval was to increase the CSF's expected return and broaden its diversification profile while remaining sufficiently liquid to meet the Fund's bi-annual distribution requirements. As of year-end 2016, actual CSF asset allocations were within policy tolerances relative to established targets, with the exception of private equity which was slightly above its upper range threshold.

CSF	Policy	Target	\$ Thousands	Actual
Domestic Equities	25-35%	30%	445,692	30.4%
International Equities	25-35%	30%	403,399	27.5%
Private Equity	0-12%	10%	176,642	12.1%
Total Equity	65-75%	70%	1,025,733	70.0%
Fixed Income	25-35%	30%	427,104	29.2%
Cash	0-3%	0%	11,669	0.8%
TOTAL CSF			\$ 1,464,506	100.0%

Staff continues to monitor the Fund’s performance and risk, as well as regularly assess CSF asset allocation ranges and targets. Recently, and consistent with CSF investment policy, staff initiated a formal CSF asset allocation study. Conducted by Callan Associates (Callan or the Firm) with the intent of evaluating and potentially improving CSF’s asset allocation profile, the Firm recommends allocations to new asset classes. Specifically, Callan recommends the OIC approve allocations to real estate and diversifying strategies to improve Fund diversification, reduce portfolio volatility and limit drawdowns inherent in an otherwise equity-oriented investment approach.

Importantly, this recommendation is consistent with both existing policy and practice in OPERF as well as the following excerpts from *INV 1201: Statement of OIC Investment Management and Beliefs*:

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

Recap of Recent OIC action relative to CSF

- Policy Revision Approvals

INV 903: Common School Fund: Public Equity Investments

H. OST Staff Authority & Reporting

INV 904: Common School Fund: Fixed Income Investments

H. OST Staff Authority & Reporting

INV 905: Common School Fund: Private Equity Investments

C. OST Staff Authority & Reporting

Recap of Recent Staff action relative to CSF

- Asset Allocation Study Conducted

Recommendation

1. Approve asset allocation change per staff and Callan's recommendation, and amend INV 901 accordingly.
2. Approve new policies and procedures, specifically INV 906: Real Estate and INV 907: Alternative Investments.
3. Approve public equity benchmark addition, and amend INV 903 accordingly.

Background on the Common School Fund

Source: Department of State Lands

The act of Congress admitting Oregon to the Union in 1859 granted sections 16 and 36 in every township "for the use of schools." The provision of land for educational purposes was a practical solution for the developing nation that was "land rich, but cash poor."

In Oregon, Congress granted roughly six percent of the new state's land - nearly 3.4 million acres - for the support of schools. Due to various circumstances, about 700,000 acres remain in state ownership today.

These lands and their mineral and timber resources, as well as other resources under the State Land Board's jurisdiction (including the submerged and submersible lands underlying the state's tidal and navigable waterways) are managed "with the object of obtaining the greatest benefit for the people of this state, consistent with the conservation of this resource under sound techniques of land management."

- **Rangelands** are leased to ranchers for grazing sheep and cattle.
- **Forestlands** are managed for timber production.
- **Waterways** are leased for uses such as sand and gravel extraction, houseboats, marinas and log rafts. The rents and royalties received from these activities are deposited in the Common School Fund, a trust fund for the benefit of Oregon's K-12 public schools.

Other sources of money contributing to the Common School Fund include:

- **Escheats** -- property reverting to the state on an individual's death because no heir or will exists or can be found;
- **Unclaimed property**, while the agency searches for the rightful owner;
- **Gifts** to the state not designated for some other purpose;
- **Tax revenues** from the production, storage, use, sale or distribution of oil and natural gas; and
- **5% of the proceeds** from the sale of federal lands.

The State Treasurer and the Oregon Investment Council invest the Common School Fund. In recent years, fund values have ranged from \$600 million to \$1.4 billion, depending on market conditions.

In addition, the Land Board must consider the issue of "intergenerational equity" in its distribution policies. Fund distributions cannot benefit current students at the disadvantage of future students, or vice-versa.

In early 2005, the State Land Board announced a record \$45.6 million distribution of earnings from the Common School Fund to all K-12 public schools and voted to modify the future distribution policy for the fund. The turnaround in the stock market during 2004 created a significant increase in the value of the Common School Fund which reached \$1 billion in February 2006.

Changes to Oregon law and the investment policies of the State Land Board beginning in the late 1980s significantly boosted earnings flowing to schools. Specifically, a 1988 Constitutional Amendment allowed investment of the Common School Fund in the stock market, subject to a legislatively-established investment cap of 50 percent. The 1997 Legislature increased the cap to 65 percent, a timely shift in strategy that has helped nearly quadruple the fund's value due to stock market appreciation and revenues generated from land management.

In 2009, the State Land Board adopted a distribution policy that distributes 4% of the fund's preceding 3-year rolling average balance. If the balance of the fund has increased by 11% or more, the distribution shall be 5% of the preceding 3-year average balance.

Legislation passed in 2005 directed the Oregon Department of Education to send CSF revenues directly to Oregon's 197 K-12 public school districts.

Recent years' distributions include the following:

2006	\$45.4 million
2007	\$48.5 million
2008	\$55.4 million
2009	\$40.4 million
2010	\$50.5 million
2011	\$48.8 million
2012	\$48.0 million
2013	\$53.1 million
2014	\$50.8 million
2015	\$54.2 million
2016	\$28.0 million

INV 906: Common School Fund: Real Estate

INTRODUCTION & OVERVIEW

Summary Policy Statement

The strategic role of real estate investments is to enhance return and diversification opportunities for the Common School Fund ("CSF"). Real estate investments are subject to the specific, strategic allocation targets established by OIC Policy ***INV 901: CSF Asset Class, Allocations and Reporting Requirements***.

Purpose and Goals

The purpose of these Real Estate Investment Policies is to define the objectives of real estate as an asset class within the general investment policies of the Oregon Investment Council ("OIC" or the "Council"), and to outline strategies used to implement the Council's real estate investment policies.

Applicability

All Investment Division staff.

POLICY PROVISIONS

A. Policy Statements

To provide attractive long-term returns among approved CSF asset classes, and increase Fund diversification.

B. Strategies

1. The OIC recognizes the need for high levels of diversification to minimize the risk of significant losses to the Fund. Diversification in real estate may be accomplished through exposure to a variety of real estate debt and equity investment strategies, property types (i.e., office, industrial, retail, multifamily, hospitality, etc.), and throughout the various stages of a property life-cycle from development to stabilized.
2. Property Types: Staff will diversify Program investments among various real property types.
3. Investments will be diversified among a range of commitment sizes which may vary upon type of specific investment structure.

4. Staff should consider geographical diversification in investment selection; moreover, and to the extent appropriate, commitments may be considered that benefit the overall economic health of Oregon so long as and only if such commitments otherwise meet the Program's investment and quality criteria.

C. OST Staff Authority & Reporting

OST Staff, with approval from the Chief Investment Officer and quarterly notification to the OIC, will have the discretion to retain any real estate manager/strategy that has been approved by the board on behalf of the Oregon Public Employees Retirement Fund (OPERF).

Exceptions

None.

INV 907: Common School Fund: Alternative Investments

INTRODUCTION & OVERVIEW

Summary Policy Statement

The strategic role of alternative investments is to enhance return and diversification opportunities for the Common School Fund ("CSF"). Alternative investments are subject to the specific, strategic allocation targets established by OIC Policy ***INV 901: CSF Asset Class, Allocations and Reporting Requirements***.

Purpose and Goals

The purpose of these policies is to define the objectives of alternative investments as an asset class within the general investment policies of the Oregon Investment Council ("OIC" or the "Council"), and to outline strategies used to implement the Council's alternative investment policies.

Applicability

All Investment Division staff.

POLICY PROVISIONS

A. Policy Statements

To provide attractive long-term returns among approved CSF asset classes, and increase Fund diversification. A lower correlation between alternative investments and other Fund assets is expected, and alternative investments are therefore expected to provide an added measure of diversification to overall Fund returns.

B. Strategies

1. The OIC recognizes the need for high levels of diversification to minimize the risk of significant losses to the Fund. Alternative investments will be diversified through exposure to a variety of possible strategies, including, but not limited to, infrastructure, natural resources (including commodities) and other so called "diversifying strategies".
2. Alternative investments will be diversified among a range of commitment sizes which may vary upon type of specific investment strategy.
3. Staff should consider geographical diversification in investment selection; moreover, and to the extent appropriate, commitments may be considered that benefit the overall

economic health of Oregon so long as and only if such commitments otherwise meet the Program's investment and quality criteria.

C. OST Staff Authority & Reporting

OST Staff, with approval from the Chief Investment Officer and quarterly notification to the OIC, will have the discretion to retain any alternative investments manager/strategy that has been approved by the board on behalf of the Oregon Public Employees Retirement Fund (OPERF).

Exceptions

None.

Common School Fund Benefits Oregon Schools



\$70.3 Million Earmarked for State's 197 K-12 Districts in 2017

Since Oregon became a state in 1859, a little-known fund—the Common School Fund—has provided hundreds of millions of dollars for Oregon public schools.

Common School Fund distributions are considered local revenue in the state funding formula, and the dollars are not insignificant. In a district such as Corvallis, their share in 2017 (\$1,184,612) supports the equivalent of 14 full-time teaching positions; in Bend, 24; and in Medford, 19.

State Land Board oversees Common School Fund

The act of Congress admitting Oregon to the Union in 1859 granted sections 16 and 36 of every township for the use of schools. Nearly 3.4 million acres—roughly the size of Connecticut—came under state ownership.

Our “land-rich, cash-poor” state quickly sold many school lands, as state officials felt private ownership of these lands would yield more for schools through property taxes and other economic benefits. As a result, less than a fourth of Oregon’s original acreage—about 750,000 acres—remains in state ownership.

The State Treasurer and Oregon Investment Council invest the Common School Fund, which exceeded its performance benchmark over the three-year period ending in 2016, earning a 4.36 percent average annual return. The value of the fund fluctuates with changing market conditions, and is now valued at \$1.4 billion. Historically, about 4 percent of the fund has been distributed to school districts annually.

2017 Common School Fund Distributions

A sampling of districts and the impact of their distributions

School District	Distribution	Equal to*
Astoria	\$218,904	2.5 full-time teachers
Bend	\$2,076,263	24
Coos Bay	\$353,865	4
Corvallis	\$1,184,612	14
Hood River	\$470,280	5.5
Medford	\$1,628,362	19
Ontario	\$286,730	3
Pendleton	\$374,504	4
Portland	\$6,190,520	73
Salem	\$5,009,361	59

*Based on the 2016 annual statewide average of \$85,056 per teacher for salary and benefits; figures are rounded



“Every education advocate should understand the Common School Fund’s role in helping fund K-12 schools.”

*Jim Paul, Director
Department
of State Lands*



“Protecting and enhancing the Common School Fund is arguably the most important thing we do as a state agency,” says Jim Paul, director of the Department of State Lands, the administrative arm of the Land Board. “Our goal is to have every education advocate understand its role in funding K-12 schools.”

Inputs into the fund include revenues from state-owned trust lands, and from estates that transfer to the state from people who die without a will and known heirs. All unclaimed property (money) the state receives is held in the Common School Fund until the rightful owner is located.

Goal is to grow the fund significantly over time

As the Common School Fund grows, so do distributions to Oregon school districts. Since 2000, distributions have ranged from a low of \$13 million in 2004 to a high of \$70 million in 2017. Distributions in the 2015-17 biennium will total about \$136.6 million.

The Department of State Lands is strategically managing the fund’s real estate assets to increase revenues to schools. Divesting of non-producing lands, investing in high-quality lands, and ensuring that state land leases reflect market values are among the agency’s strategies, says Paul.

“Every dollar helps Oregon schools,” he says. “Through balancing revenue enhancement and resource protection, our goal is to provide sustainable funding for schools forever.”



Common School Fund distributions are sent to school districts twice a year. By law, fund distributions cannot benefit current students at the disadvantage of future students, or vice-versa.

The Land Board’s Real Estate Asset Management Plan calls for a “clear commitment to creating a consistent stream of revenue to increase annual distributions to schools.” It also recognizes the need to strategically dispose of selected land assets and acquire assets with high performance potential.



Oregon Department of State Lands

775 Summer St. NE
Suite 100
Salem, OR 97301-1279

(503) 986-5200
www.oregon.gov/DSL

For more information and copies of this fact sheet, contact:
Julie Curtis
(503) 986-5298
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June 7, 2017



**Oregon Common School
Fund**

Asset Allocation Study

Agenda

- Overview
- Examining the Investment Policy
- Current situation and current asset classes
 - Review the current asset allocation target
 - Observations and recommendations
- Why diversify?
- Consideration of Private Real Estate
- Consideration of Diversifying Strategies
- Observations and recommendations
- Peer Comparison
 - Western State Lands

Overview

- The current investment policy is efficiently allocated to public equity (domestic and international), private equity, and fixed income.
 - Keeping current asset classes constant, the Fund is expected to earn 6.5% with a minimum risk level of 14.5%.
- The Fund has greater allocations to public equity and fixed income and a much lower allocation to alternative investments relative to a majority of its peers.
- While the current investment policy is reasonable and could be maintained going forward, Callan recommends the Fund consider allocations to private real estate and diversifying strategies to improve diversification, reduce distribution volatility, and limit the potential drawdown risk associated with an equity/growth oriented portfolio.

Today's Focus is on Examining the Investment Policy

Overview of Investment Goals

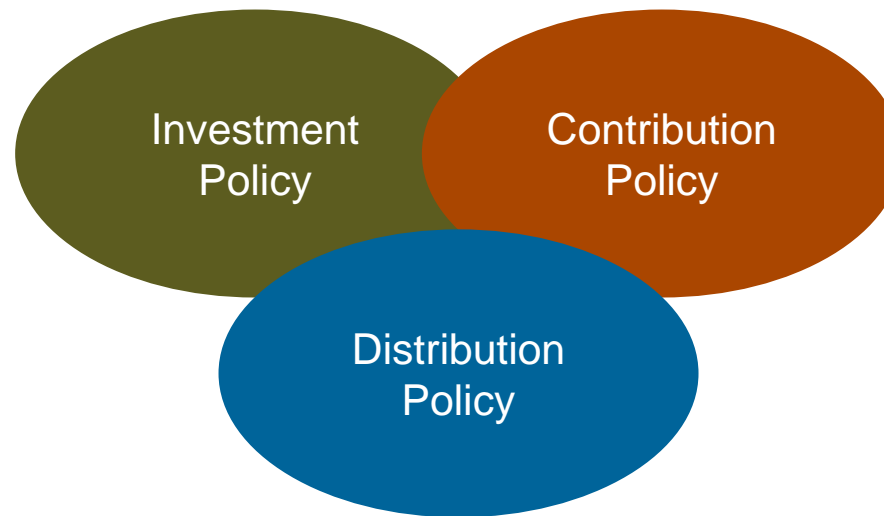
- The investment policy, or asset allocation, is one of the three key components of the Fund (along with the contribution and spending policies).
- Asset allocation is the process of determining the optimal allocation of a portfolio among broad asset classes based on several factors:
 - Capital market expectations
 - Cash flow considerations
 - Recent experience
 - Investment goals and objectives
 - Risk tolerance
 - Time horizon
- A well engineered asset allocation considers:
 - All appropriate asset classes for inclusion
 - Liquidity needs, asset class limitations, implementation challenges, administrative and legal burdens, size or capacity constraints
 - Rebalancing discipline

Where Does Asset Allocation Fit In?

We evaluate the interaction of the three key policies that govern the Fund with the goal of establishing an appropriate investment policy.

Investment Policy

- How will the assets supporting distributions be invested?
- What risk and return objectives?
- How to manage cash flows?



Contribution Policy

- What is the source of contributions?
- What level of contributions can be expected?

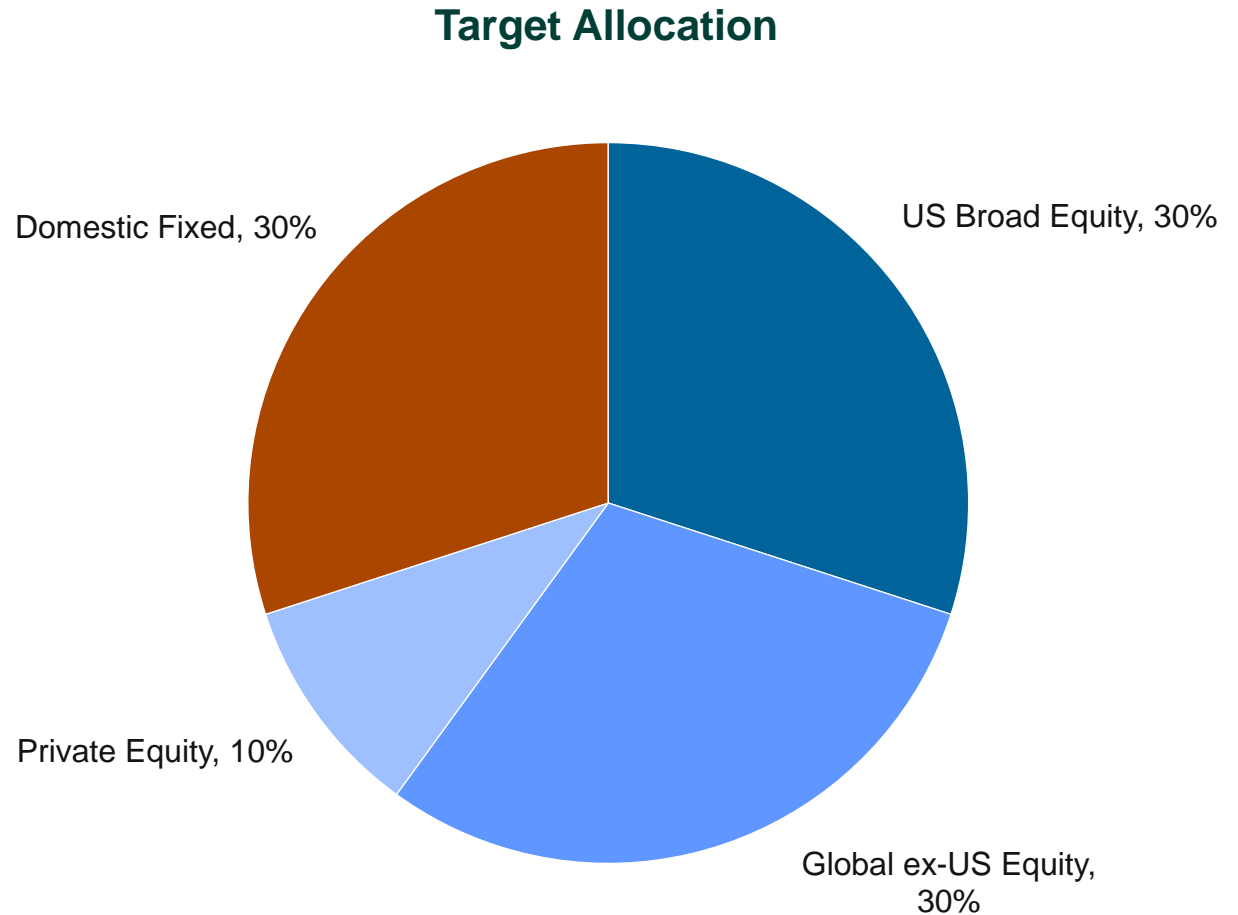
Distribution Policy

- What type of distribution policy?
- What level of distributions?

Current Situation

Assets

- The Fund had approximately \$1.5 billion in assets as of December 31, 2016.
- The Target asset allocation is 70% equity (60% public and 10% private) and 30% fixed income.
 - Public equity is evenly divided between U.S. and non-U.S. equity.
- The current Target has a 6.5% expected return with a 14.5% expected standard deviation.
- Expected returns assume primarily passive implementation; however, 86% of assets are actively managed.



Expected Return = 6.5%
Expected Risk = 14.5%

Observations and Recommendations

- The existing target allocation is “optimal”.
 - The allocation is expected to earn its projected rate of return (6.5%) with the minimum level of risk (14.5%).
- The Fund has greater allocations to public equity and fixed income and a much lower allocation to alternative investments relative to peers.
- Callan recommends the Fund consider allocations to new asset classes to improve diversification, reduce distribution volatility, and limit the potential drawdown risk associated with a public equity heavy portfolio.



Why Diversify?

Why Diversify?

- Asset class performance varies with the economy.
 - Given this uncertainty, seek diversification to preserve capital through various economic conditions.
- Drawdown considerations
 - Market drawdowns for equity-oriented portfolios can be severe.
 - Timing usually coincides with periods of economic uncertainty presenting a challenge during rebalancing and cash distributions.

Asset Classes to Consider

- The Fund lacks inflation linked (or real return) and absolute return oriented investments.
- Private real estate is typically the largest, if not the sole, real return asset class in most large institutional portfolios.
 - While the Fund has sizeable real estate holdings in Oregon, we believe that a diversified real estate allocation that provides an expanded opportunity set (a greater number of potential investments to choose from) and diversification possibilities (more types of investments) is consistent with prudence, cost-effectiveness and the scale required to have a meaningful impact on the portfolio.
- Hedge funds and diversifying strategies are the two main absolute return oriented investments.
 - OST Staff has indicated a preference for diversifying strategies over hedge funds given the potential for investing alongside the Oregon Public Employees Retirement Fund.
- Private real estate and diversifying strategies are examined in the following sections of the study.

Economic Roles of Asset Classes

Overview

- Asset classes can be bucketed based on their responses to macroeconomic scenarios.
- This approach combines the transparency of asset classes with the granularity of risk factor-based approaches.

<p>Capital Accumulation (70%)</p> <ul style="list-style-type: none">• <i>Grow assets through relatively high long-term returns</i>• Public equity 60%• Private equity 10%	<p>Diversifying Strategies (0%)</p> <ul style="list-style-type: none">• <i>Generally earn returns between stocks and bonds while attempting to protect capital</i>• Risk premia• Trend following	<p>Flight to Quality (30%)</p> <ul style="list-style-type: none">• <i>Protect capital in times of market uncertainty</i>• Fixed income 30%• Cash equivalents	<p>Inflation Linked (0%)</p> <ul style="list-style-type: none">• <i>Support the purchasing power of assets</i>• Real estate• Infrastructure• Commodities• TIPS
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Private Real Estate

Private Real Estate

Overview

- Private real estate = private investment in commercial real estate.
- There are three common private real estate strategies with varying levels of risk depending on their income-orientation and use of leverage:
 - Core
 - *Most conservative*
 - *Predictable income and cash flows*
 - Value added & opportunistic (“non-core”)
 - *Takes advantages of market dislocations*
 - *Return enhancement as a primary objective*
 - *Less conservative, less liquid*
- Real estate provides competitive returns with a strong income component, diversification, and inflation protection (both short and long-term).
- The primary drawbacks to private real estate are illiquidity and program complexity.
- Private real estate investments are common among institutional investors, especially among larger funds.

Real Estate Pros & Cons

Pros

- Competitive returns that generally fall between stocks and bonds.
- Diversification benefits when added to portfolios of stocks and bonds.
 - Low correlations with stocks and bonds due to valuation based accounting and cyclical economics.
- Strong, stable income component.
- Inefficiency creates return opportunities.
- Inflation protection characteristics, both short and long-term.

Cons

- All real estate is cyclical.
- Not valued daily.
- Illiquid.
- Management intensive/implementation risks.
- High fees compared to mainstream asset classes.
- Lack of investable indices; benchmarking issues.

Private Real Estate

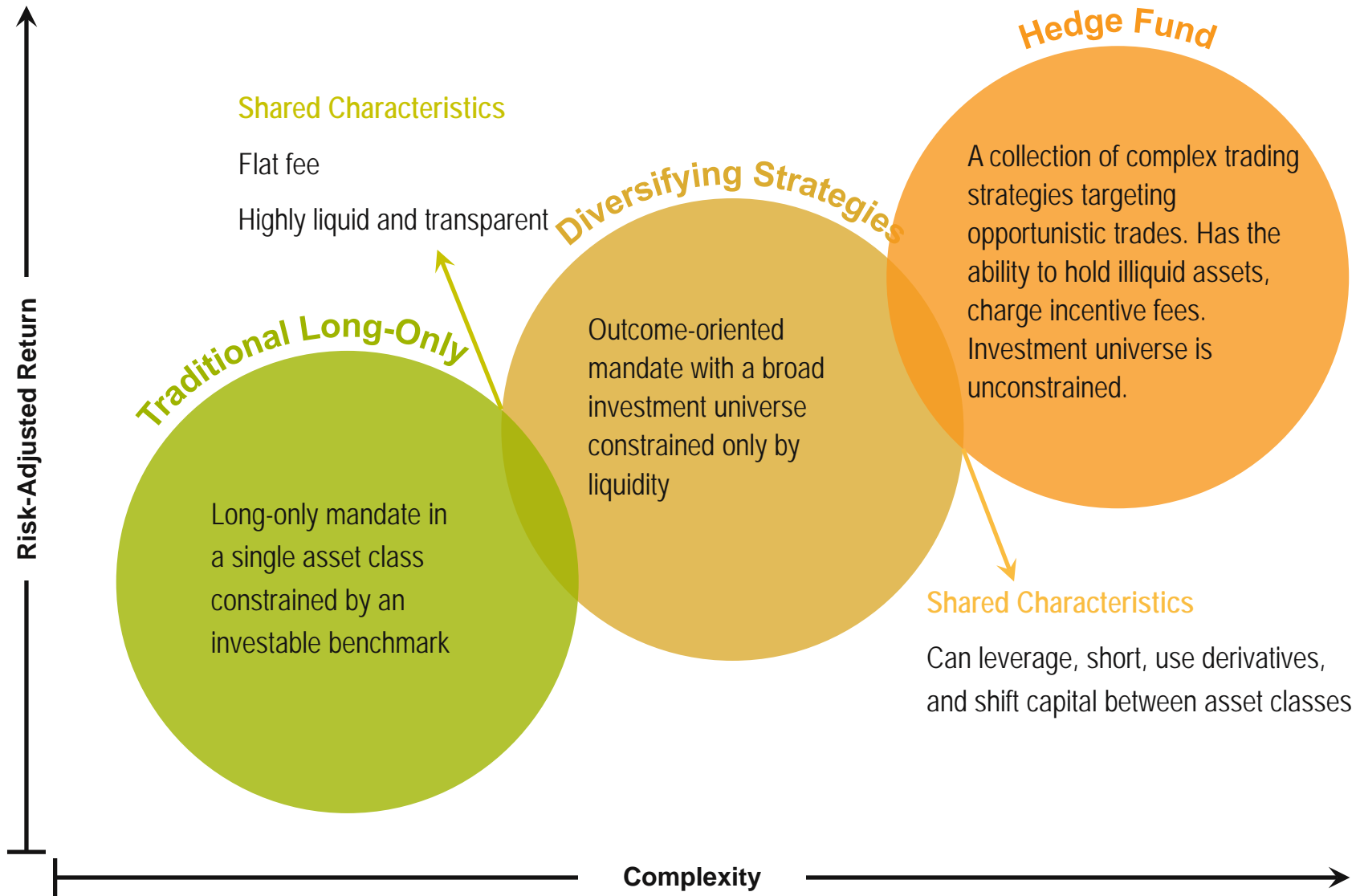
Summary

- Given proper implementation, real estate can provide diversification, inflation protection, and reasonable returns with a strong income component.
- A portfolio of stocks and bonds benefits from additional diversification to smooth a fund's path to meet long-term return objectives.
- The various risks of real estate, including concerns of liquidity and cyclical, are manageable with proper due diligence and oversight given available resources.



Diversifying Strategies

Bridging The Gap



Diversifying Strategy Summary

- Diversifying strategies are outcome-oriented solutions (no benchmark) that invest across multiple asset classes.
- Diversifying strategies have many appealing features that make them attractive:
 - Diversification
 - Dynamic risk management
 - Focus on drawdown protection (risk management)
 - Ability to use derivatives and invest in most asset classes (constrained only by liquidity)
 - Liquid, transparent, with static fees (ranging from 0.50% – 1.40%)
- Diversifying strategies are more complex than traditional long only strategies.
- Implementation risk: Diversifying strategies are unconstrained and highly dependent on manager skill.
 - Track records are short for many products.
- Performance evaluation requires greater patience as the strategies are benchmark agnostic and typically designed to deliver higher risk-adjusted returns over a time period measured in years not quarters (typically 5+ years).



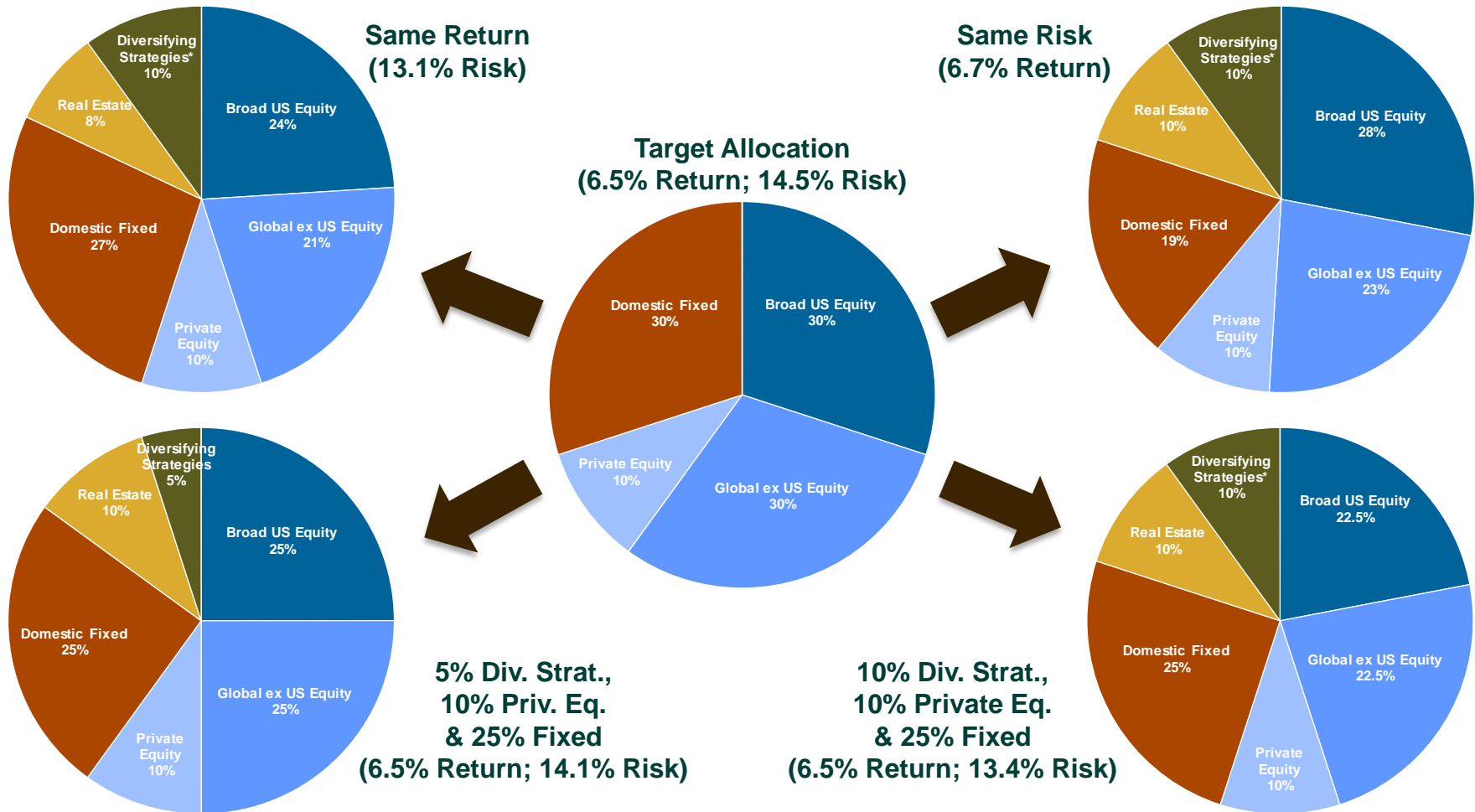
**Observations and
Recommendations**

Observations and Recommendations

- The current investment policy is efficiently allocated to public equity (domestic and international), private equity, and fixed income.
- The Fund has greater allocations to public equity and fixed income and a much lower allocation to alternative investments relative to a majority of its peers.
- While the current investment policy is reasonable and could be maintained going forward, Callan recommends the Fund consider allocations to private real estate and diversifying strategies to improve diversification, reduce distribution volatility, and limit the potential drawdown risk associated with a public equity heavy portfolio.
 - Real estate provides competitive returns with a strong income component, diversification, and inflation protection (both short and long-term).
 - Diversifying strategies are liquid, transparent strategies that can mitigate equity risk concentration via diversification, dynamic risk management, and drawdown protection.
- The funding sources for real estate and diversifying strategies depends on the primary goal for each asset class.
 - The goal and funding source for each asset class will determine the impact on total portfolio return and risk.

Observations and Recommendations

Current Target and Four Alternative Asset Mixes



- While there are a range of asset mixes that could be considered, four potential mixes are shown above.
- Callan believes the above pie charts represent reasonable asset allocation policy alternatives the Fund could employ given the current distribution policy and Callan’s capital markets expectations.

Observations and Recommendations

Current Target and Optimal Asset Mixes (Real Estate and 10% Diversifying Strategies)

Asset Class	Current	Target	Optimal Mixes						
			Min	Max	Mix 1	Mix 2	Mix 3	Mix 4	Mix 5
Broad US Equity	30%	30%	0%	100%	20%	22%	25%	27%	30%
Global ex US Equity	27%	30%	0%	100%	18%	20%	21%	23%	25%
Private Equity	12%	10%	10%	100%	10%	10%	10%	10%	10%
Domestic Fixed	29%	30%	0%	100%	35%	30%	25%	20%	15%
Real Estate	0%	0%	0%	100%	7%	8%	9%	10%	10%
Diversifying Strategies*	0%	0%	0%	10%	10%	10%	10%	10%	10%
Cash Equivalents	2%	0%	0%	100%	0%	0%	0%	0%	0%
Totals	100%	100%			100%	100%	100%	100%	100%
Expected Return	6.5%	6.5%			6.2%	6.4%	6.6%	6.7%	6.8%
Expected Standard Deviation	14.5%	14.5%			11.8%	12.6%	13.5%	14.4%	15.3%
Total Equity Allocation	69%	70%			48%	52%	56%	60%	65%

*Diversifying Strategies have a 6.2% expected return with an 11.0% standard deviation.

- The optimal mixes are constructed with a 10% maximum allocation to diversified strategies and a 10% minimum allocation to private equity.
- The mixes have similar returns to the Current Target but with meaningfully lower risk levels.

Peer Comparison

Western State Land Trusts

Asset Class (# Invested)	Western State Land Trusts*	Oregon CSF Target
US Equities (9/9)	25	30
NUS Equities (7/9)	18	30
Fixed Income (9/9)	25	30
Real Estate (7/9)	10	0
Private Equity (4/9)	5	10
Absolute Return/Other (4/9)	18	0
Cash (5/9)	5	0

*Median allocation of those with investments in the asset class. Mix of actual and target allocations from 2016.

- The table above illustrates the median allocations to the major asset classes for nine western state land trusts.
- The nine land trusts have a median asset value of \$3.4 billion and total assets of over \$71 billion.
- The Fund has a greater allocation to public equity and fixed income and a lower allocation to alternative investments relative to the peer group median.

Disclaimers

This report is for informational purposes only and should not be construed as legal or tax advice on any matter. Any decision you make on the basis of this content is your sole responsibility. You should consult with legal and tax advisers before applying any of this information to your particular situation.

This report may consist of statements of opinion, which are made as of the date they are expressed and are not statements of fact.

Reference to or inclusion in this report of any product, service or entity should not be construed as a recommendation, approval, affiliation or endorsement of such product, service or entity by Callan.

Past performance is no guarantee of future results.

The statements made herein may include forward-looking statements regarding future results. The forward-looking statements herein: (i) are best estimations consistent with the information available as of the date hereof and (ii) involve known and unknown risks and uncertainties such that actual results may differ materially from these statements. There is no obligation to update or alter any forward-looking statement, whether as a result of new information, future events or otherwise. Undue reliance should not be placed on forward-looking statements.

TAB 5 – Q1 2017 Performance & Risk Report

OPERF

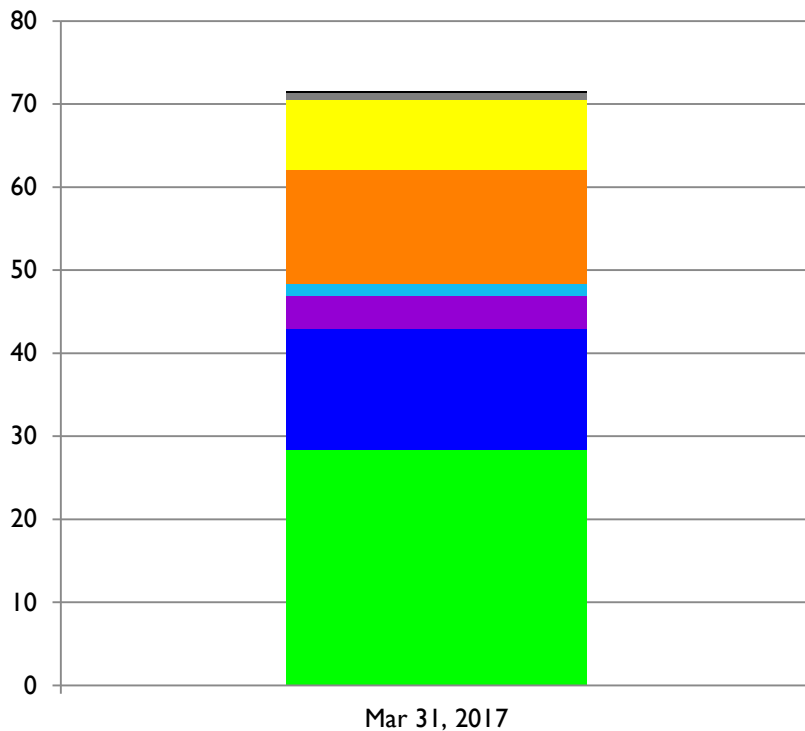


2017 Q1 OPERF Risk Dashboard

June 7, 2017

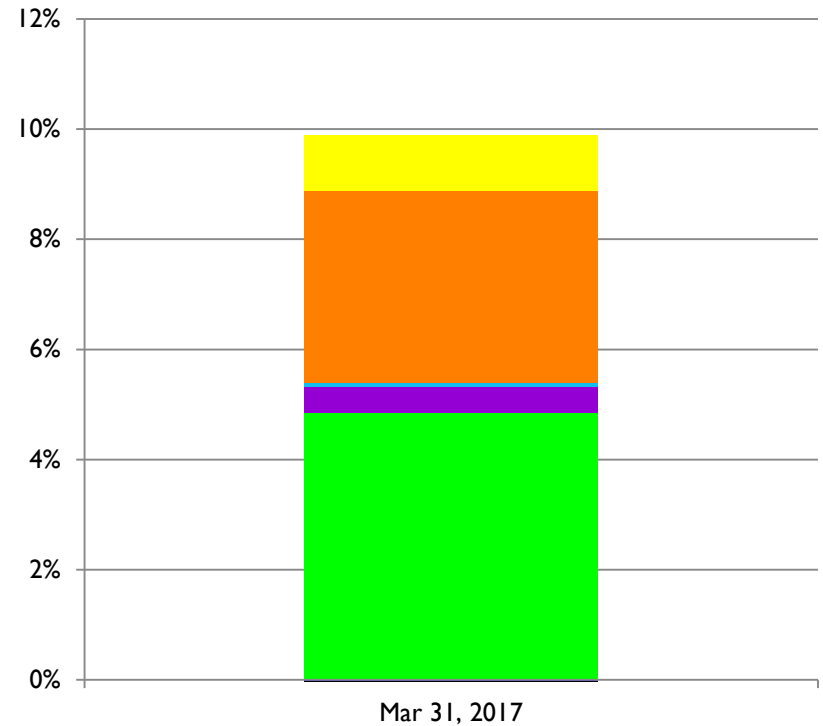
Capital Allocation & Risk Contribution by Asset Class

Allocation in \$B



- Equity
- Fixed Income
- Alternatives Portfolio
- Opportunity Portfolio
- Private Equity
- Real Estate
- Cash
- Overlay

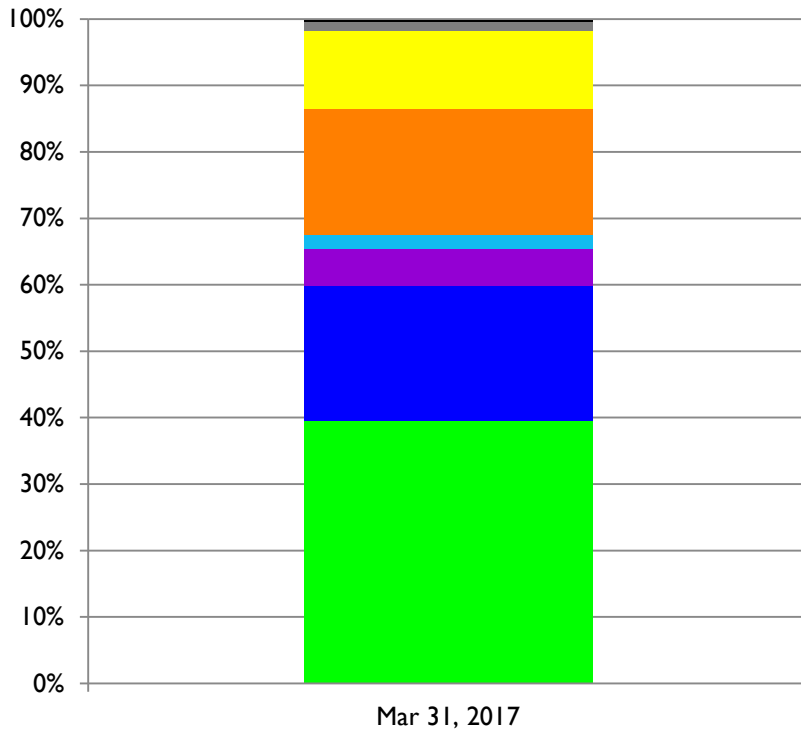
Risk Contribution



- Equity
- Fixed Income
- Alternatives Portfolio
- Opportunity Portfolio
- Private Equity
- Real Estate
- Cash
- Overlay

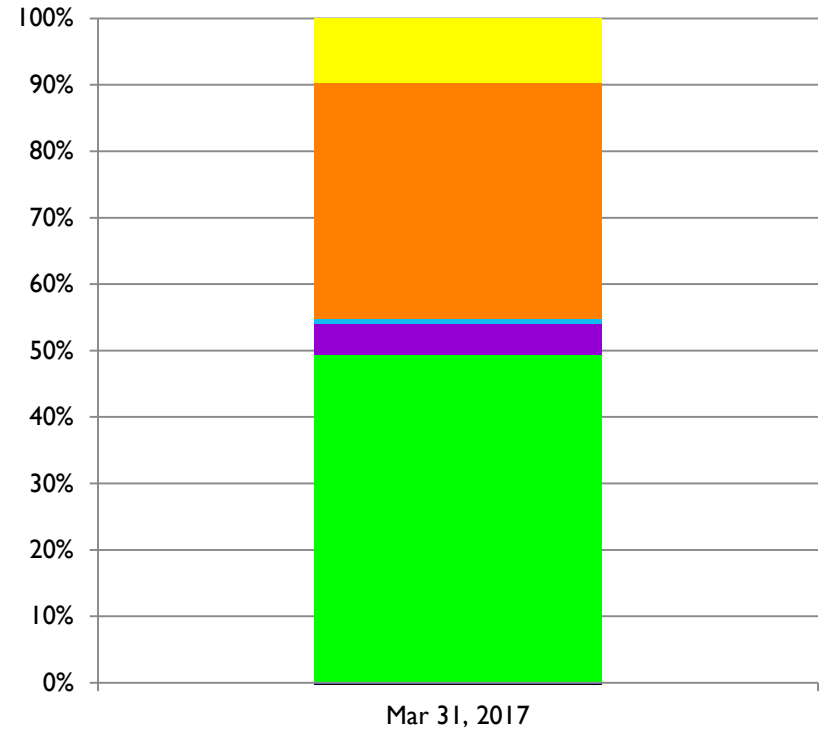
Scaled Capital Allocation & Risk Contribution by Asset Class

Allocation % of Total



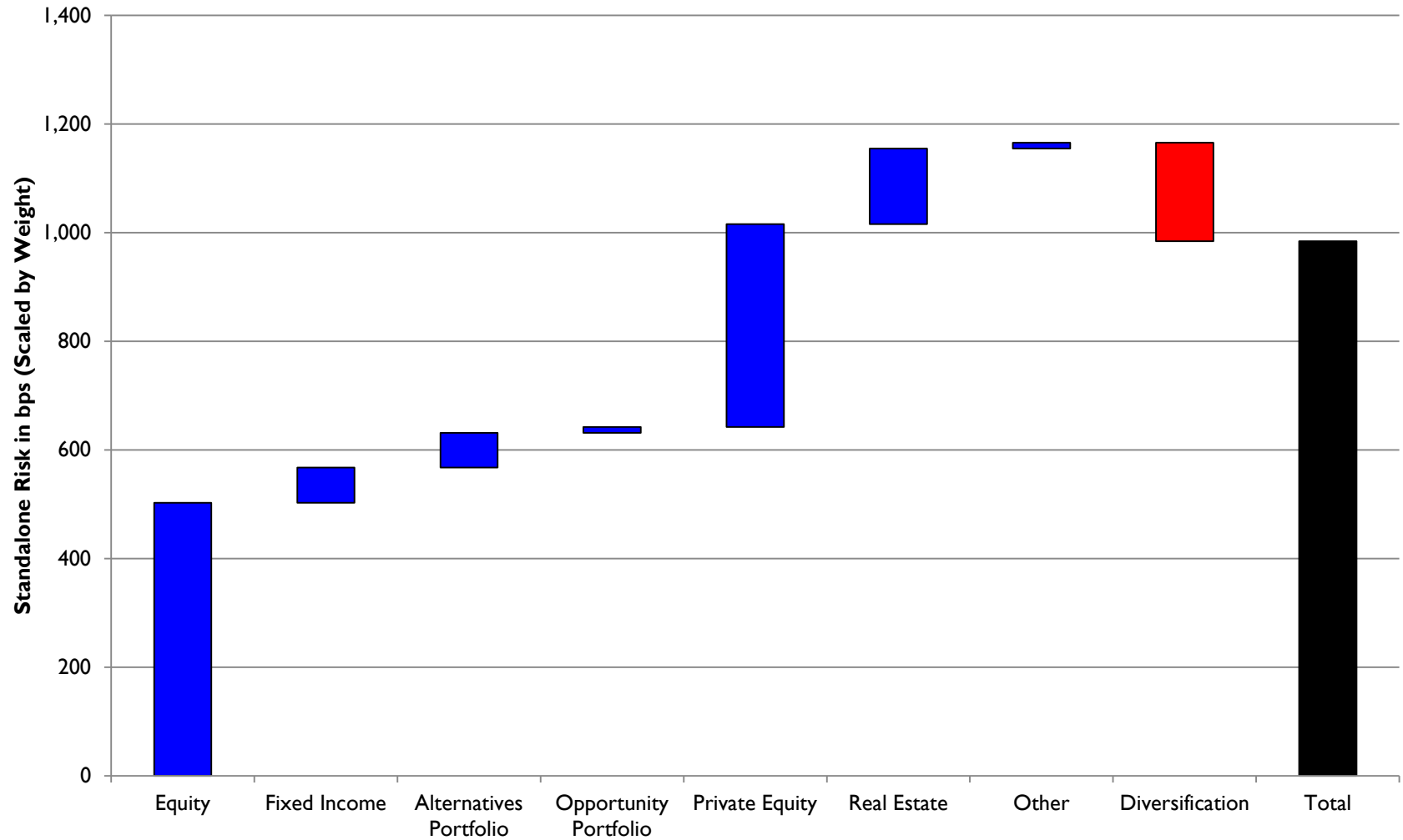
- Equity
- Fixed Income
- Alternatives Portfolio
- Opportunity Portfolio
- Private Equity
- Real Estate
- Cash
- Overlay

Risk Contribution % of Total



- Equity
- Fixed Income
- Alternatives Portfolio
- Opportunity Portfolio
- Private Equity
- Real Estate
- Cash
- Overlay

Standalone Risk by Asset Class

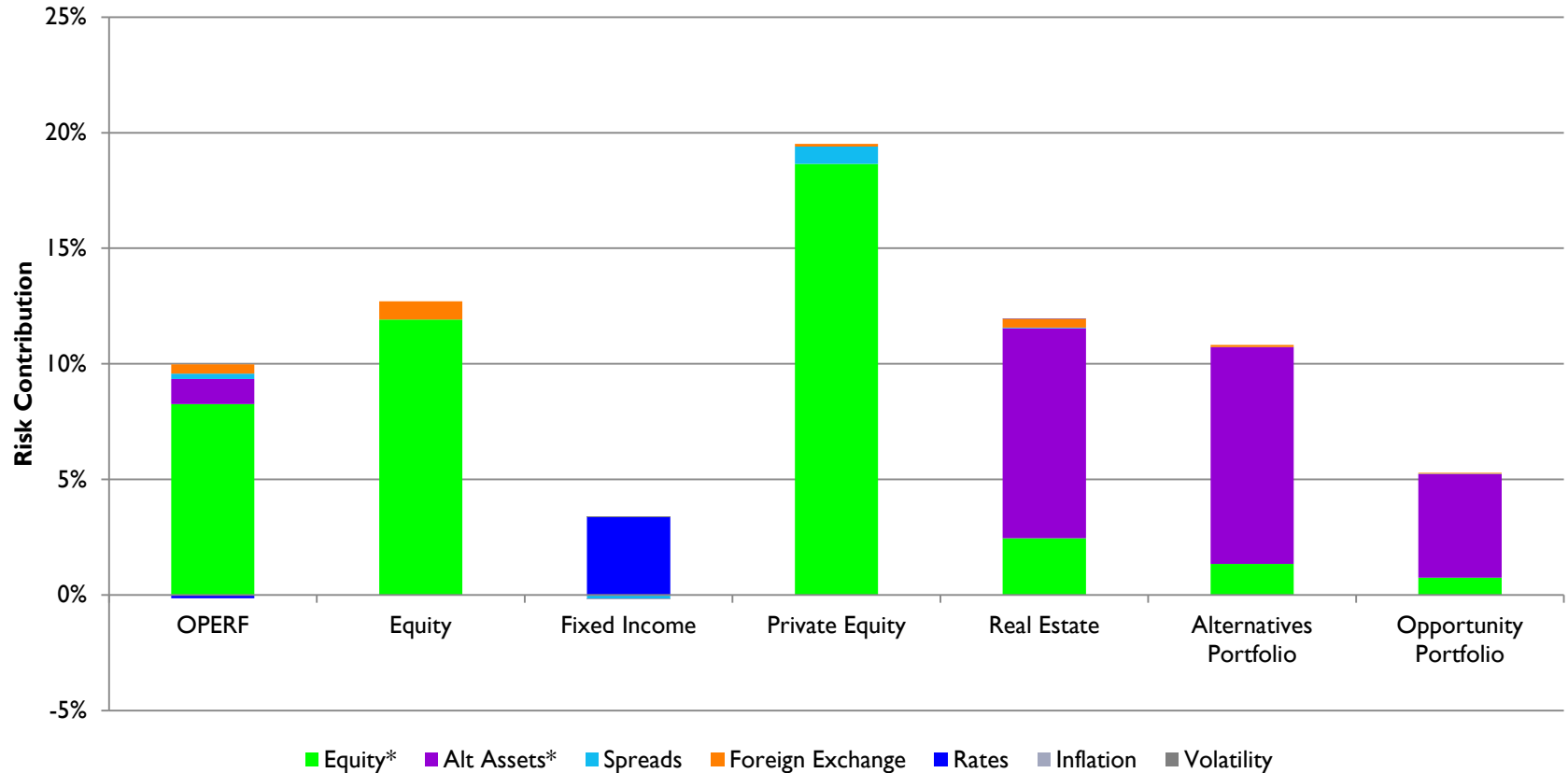


Correlation Matrix by Asset Class

Mar 31, 2017	Equity	Fixed Income	Alternatives Portfolio	Opportunity Portfolio	Private Equity	Real Estate	OPERF
Equity	1.00	-0.08	0.62	0.64	0.85	0.61	0.97
Fixed Income		1.00	0.01	-0.06	-0.25	0.26	-0.03
Alternatives Portfolio			1.00	0.50	0.64	0.48	0.70
Opportunity Portfolio				1.00	0.65	0.37	0.67
Private Equity					1.00	0.50	0.92
Real Estate						1.00	0.70
OPERF							1.00

- ▶ Ex-Ante, holdings-based correlations between asset classes as estimated by Aladdin.

Risk Contribution by Factor Group



*Aladdin's Alternative risk factor group includes Private Equity, Real Estate, and Hedge Fund risk factors; however, Private Equity risk factors are highly correlated to Public Equity risk factors. In the above chart, Equity includes both Public & Private Equity while Alt Assets includes all other Alternative risk factors.

Liquidity Report

Asset Class	Liquidity (\$M)				∞	Uncalled Commitment	Next 12 Months
	1 Week	1 Month	1 Quarter				
Cash & Overlay	985						
Public Equity	25,096	1,779	1,127				
Fixed Income	11,490	2,363					
Private Equity				13,895	-9,275		
Real Estate	1,995			6,905	-2,243		
Alternatives	215			4,040	-2,926		
Opportunity				1,477	-852		
Pension Benefits							-3,000
Total	39,781	4,142	1,127	26,318	-15,295		-3,000

Public Equity - 1 Month = AQR 130/30, Arrowstreet 130/30, & Callan U.S. Micro Cap Value portfolios

Public Equity - 1 Quarter = Lazard Closed-End Fund portfolio

Fixed Income - 1 Month = Below Investment Grade

Real Estate - 1 Week = REIT composite

Alternatives - 1 Week = SailingStone

- ▶ Table periods approximate the time required to liquidate different OPERF allocations.

Top 10 Exposures by Investment Firm

Rank	Asset Manager	Mkt Val (\$mm)	Mkt Val Weight	Asset Class
1	Internally-Managed	6,543	9.3%	Cash, Public Equity
2	Dimensional Fund Advisors	5,238	7.4%	Public Equity
3	AB (f/k/a AllianceBernstein)	3,779	5.3%	Fixed Income, Public Equity
4	AQR	3,486	4.9%	Alternatives, Public Equity
5	Wellington	3,362	4.8%	Fixed Income, Public Equity
6	KKR	3,188	4.5%	Fixed Income, Private Equity
7	BlackRock	3,183	4.5%	Fixed Income, Public Equity
8	Western Asset Management	2,880	4.1%	Fixed Income
9	Lazard Asset Management	2,009	2.8%	Public Equity
10	Arrowstreet Capital	1,809	2.6%	Public Equity



June 7, 2017



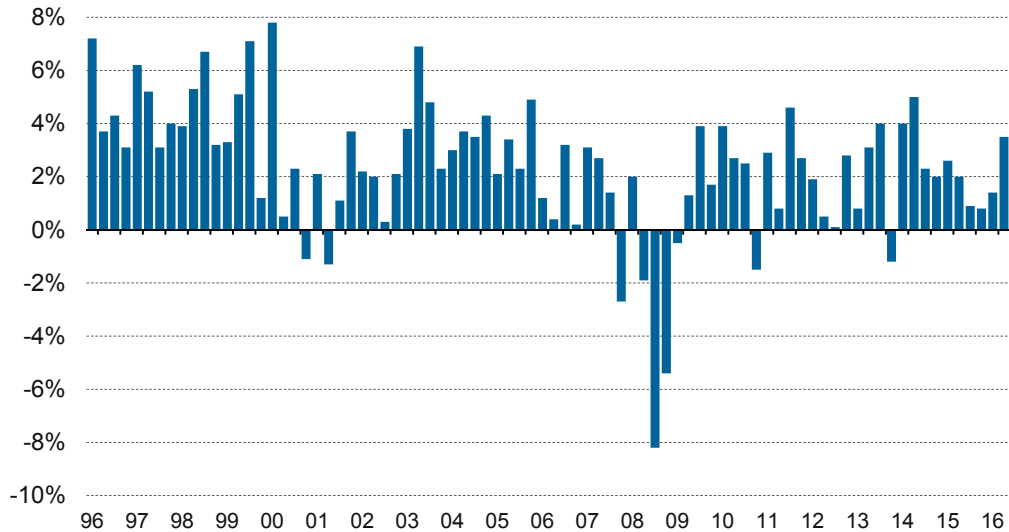
Oregon Investment Council

First Quarter 2017
Performance Review

Economic Commentary

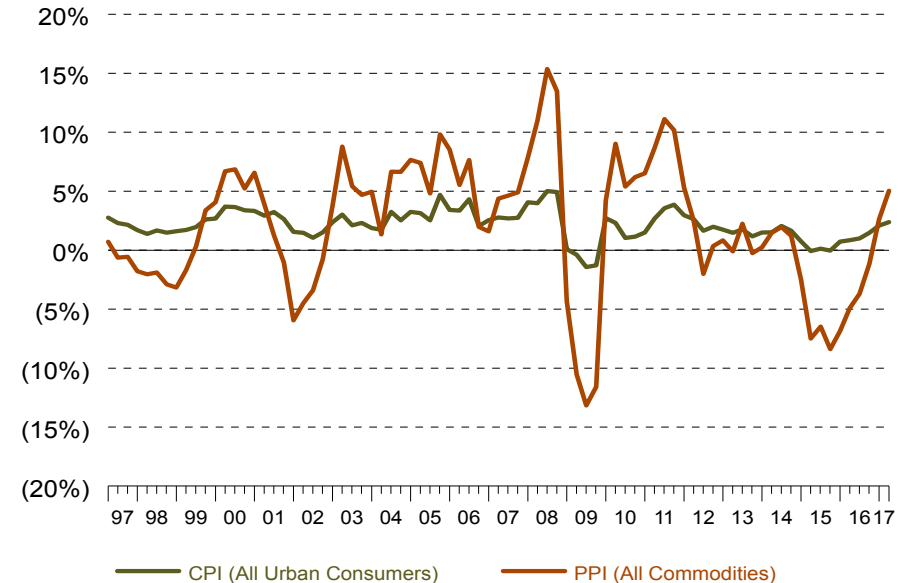
First Quarter 2017

Quarterly Real GDP Growth (20 Years)



Source: Bureau of Economic Analysis

Inflation Year-Over-Year



Source: Bureau of Labor Statistics

- The U.S. economic picture was generally strong in the first quarter. The fourth quarter GDP was revised modestly higher to +2.1%. Growth was supported by consumer spending and inventories.
- Job growth averaged 178,000 in the first quarter, but masked a slow March (98,000) following a strong start to the year (216,000 in January and 219,000 in February). Unemployment reached the lowest reading since April 2007, falling to 4.5%. The labor force participation rate remained steady at 63.0%. Wage pressure eased off as average hourly earnings increased just 0.2% in March and are up 2.7% year-over-year.
- Inflation, while still tame, is rising. For the trailing 12 months ended March, headline CPI was +2.4%, and Core CPI (excluding food and energy) was +2.0%.

Market Summary

First Quarter 2017

Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
MSCI:EM Gross 11.5%	Russell:2000 Index 26.2%	NCREIF:NFI-ODCE Val Wt Gr 11.8%	S&P:500 13.3%	Russell:3000 Index 7.5%
MSCI:ACWI ex US 7.9%	Russell:3000 Index 18.1%	S&P:500 10.4%	Russell:3000 Index 13.2%	S&P:500 7.5%
S&P:500 6.1%	MSCI:EM Gross 17.7%	Russell:3000 Index 9.8%	Russell:2000 Index 12.4%	ML:High Yield CP Idx 7.3%
Russell:3000 Index 5.7%	S&P:500 17.2%	Russell:2000 Index 7.2%	NCREIF:NFI-ODCE Val Wt Gr 12.0%	Russell:2000 Index 7.1%
ML:High Yield CP Idx 2.7%	ML:High Yield CP Idx 16.7%	ML:High Yield CP Idx 4.6%	ML:High Yield CP Idx 6.8%	NCREIF:NFI-ODCE Val Wt Gr 5.6%
Russell:2000 Index 2.5%	MSCI:ACWI ex US 13.1%	Blmbg:Aggregate 2.7%	MSCI:ACWI ex US 4.4%	Blmbg:Aggregate 4.3%
NCREIF:NFI-ODCE Val Wt Gr 1.8%	NCREIF:NFI-ODCE Val Wt Gr 8.3%	MSCI:EM Gross 1.5%	Blmbg:Aggregate 2.3%	MSCI:EM Gross 3.0%
Blmbg:Aggregate 0.8%	Blmbg:Aggregate 0.4%	MSCI:ACWI ex US 0.6%	MSCI:EM Gross 1.2%	MSCI:ACWI ex US 1.4%
3 Month T-Bill 0.1%	3 Month T-Bill 0.4%	3 Month T-Bill 0.2%	3 Month T-Bill 0.1%	3 Month T-Bill 0.7%

OPERF Total Regular Account

Performance Summary for the First Quarter 2017

Total Fund:

In the first quarter of 2017, the Total Regular Account gained 3.85% (+3.76% net of fees), trailing the 4.24% return of the Policy Target, and ranked in 81st percentile of Callan's \$10B+ public fund peer group. For the 12 months ended March 31, 2017, the Account rose 10.12% (+9.78% net of fees) versus 10.99% for the Policy Target, and ranked in the 91st percentile of Callan's \$10B+ public fund peer group.

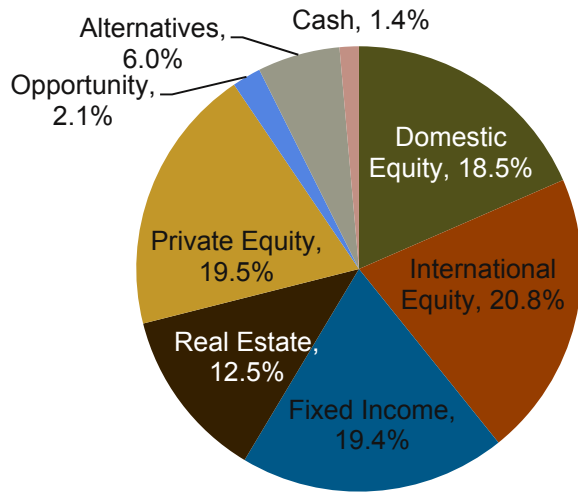
Asset Classes:

- **Total Fixed Income:** The Fixed Income Portfolio added 1.25% (+1.22% net of fees) for the quarter versus an advance of 0.88% for the Custom Benchmark, and ranked in the 59th percentile of Callan's Public Funds \$10+B US Fixed income (Gross) peer group. For the trailing year, the Portfolio gained 2.79% (+2.61% net of fees), coming in ahead of the benchmark return of 1.53%, and ranked in the 64th percentile of the peer group. 10 year results continue to be ahead of the benchmark and rank in the top quartile of the peer group.
- **Total Public Equity:** Total Public Equity gained 6.44% (+6.38% net of fees) for the quarter versus the 6.79% rise in the MSCI ACWI IMI Net benchmark, and ranked in the 63rd percentile of peers. For the trailing year, the portfolio surged 16.83% (+16.54% net of fees), easily beating the 15.37% return of the benchmark and ranked in the top quartile of the peer group.
 - **U.S. Equity:** The U.S. Equity Portfolio rose 4.74% (+4.72% net of fees) for the quarter, falling behind the 5.74% gain in the Russell 3000 Index, and ranked in the 90th percentile of Callan's Public Fund: \$10B+ Domestic Equity (gross) peer group. On a trailing 12 month basis, the Portfolio surged 19.34% (+19.22% net of fees) versus an increase of 18.07% for the benchmark and ranked in the top quartile of the peer group. 10 year results are slightly behind those of the benchmark on a net of fee basis (+7.25% versus +7.54%) and rank just below the median of the peer group.
 - **International Equity:** The International Equity Portfolio advanced 8.48% (+8.37% net of fees) for the quarter versus a gain of 7.99% for the MSCI ACWI ex-U.S. IMI Index, and ranked in the top half of Callan's Public Fund: \$10B+ International Equity (gross) peer group. For the trailing year, the Portfolio gained 14.26% (+13.80% net of fees) versus 13.01% for the benchmark. This one year return ranked the portfolio just above the median of the peer group. 10 year results remain well ahead of the benchmark and continue to rank in the top quartile of the peer group.
- **Total Real Estate:** The Real Estate Portfolio continues to show favorable absolute results over the last decade with an annualized return of 4.69% net of fees.
- **Opportunity Portfolio:** The Opportunity Portfolio has shown solid absolute results over the last ten years with an annualized return of 6.26% net of fees.
- **Alternative Portfolio:** The Alternative Portfolio has returned 2.83% net of fees over the last five years.
- **Total Private Equity:** The Private Equity Portfolio's returns remain strong on an absolute basis over the last ten years with an annualized return of 8.69% net of fees

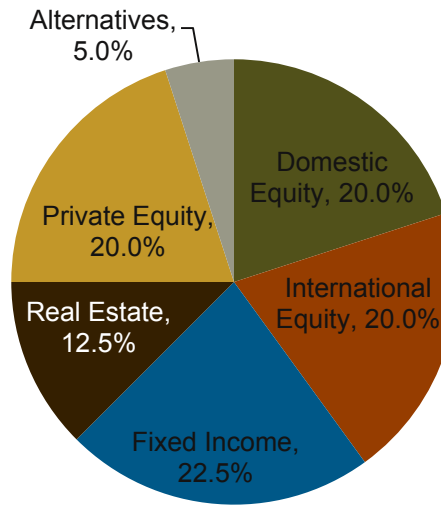
OPERF Total Regular Account

Asset Allocation as of March 31, 2017

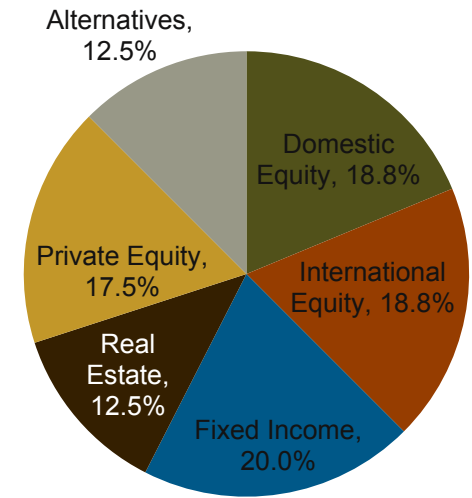
Actual Allocation



Interim Policy Target



Strategic Policy Target*



Asset Class	\$000s	Weight		Percent Difference	\$000s Difference
		Actual	Target		
Total Regular Account	71,427,987	100.0%	100.0%		
Total Fixed Income	13,853,470	19.4%	22.5%	(3.1%)	(\$2,217,827)
U.S. Equity Portfolio	13,231,594	18.5%	20.0%	(1.5%)	(\$1,054,003)
Non-U.S. Equity Portfolio	14,826,594	20.6%	20.0%	0.6%	\$540,996
Total Real Estate	8,900,194	12.5%	12.5%	0.0%	(\$28,305)
Opportunity Portfolio	1,477,260	2.1%	0.0%	2.1%	1,477,260
Alternative Portfolio	4,255,385	6.0%	5.0%	1.0%	683,986
Total Private Equity	13,895,366	19.5%	20.0%	(0.5%)	(\$390,231)
Cash	988,124	1.4%	0.0%	1.4%	988,124

*Target established in June 2015

OPERF Total Regular Account

Net Performance by Asset Class as March 31, 2017

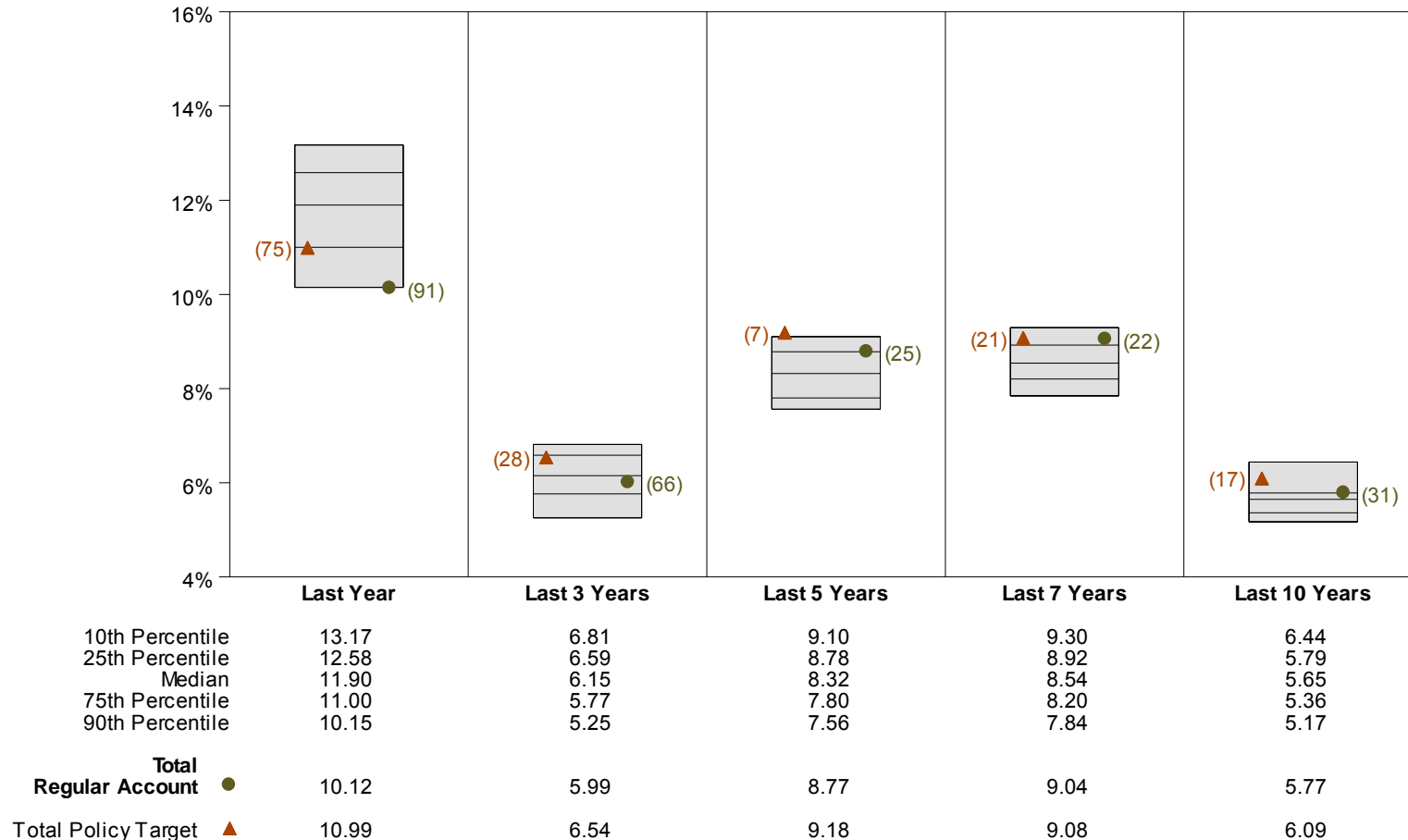
	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Total Regular Account	9.78	5.70	8.49	5.50
Total Regular Account ex-Overlay	9.65	5.62	8.39	5.49
OPERF Policy Benchmark*	10.90	6.51	9.17	6.08
Total Fixed Income	2.61	2.21	3.25	5.22
OPERF Total Custom FI Benchmark	1.53	1.81	2.60	4.28
Callan Public Fund \$10bn+ U.S. Fixed	3.44	3.32	3.16	4.86
Total Public Equity	16.54	5.43	9.34	4.61
MSCI ACWI IMI Net	15.37	5.07	8.55	4.23
U. S. Equity	19.22	8.89	12.68	7.25
Russell 3000 Index	18.07	9.76	13.18	7.54
Callan Large Public > \$10bn U.S. Equity	18.91	9.60	13.06	7.55
Non-U.S. Equity	13.80	2.07	6.12	2.95
MSCI ACWI ex USA IMI	13.01	0.82	4.66	1.59
Callan Large Public >\$10bn Non-U.S. Equity	13.45	1.84	5.59	2.31
Total Real Estate	6.80	10.37	11.50	4.69
Total Real Estate ex REITs	11.37	12.25	13.00	5.17
NCREIF Property Index Qtr Lag	8.52	11.21	11.03	6.99
Callan Public Plan - Real Estate	7.07	10.32	10.71	4.41
Opportunity Portfolio	9.37	4.08	8.16	6.26
Russell 3000 Index	18.07	9.76	13.18	7.54
CPI - 5%	7.35	5.73	5.99	6.72
Alternative Portfolio	11.63	3.72	2.83	--
CPI - 4%	6.48	5.09	5.27	--
Total Private Equity	7.05	7.88	11.59	8.69
OIC - Russell 3000 + 300 BPS Qtr Lag	16.08	11.67	18.07	10.70

*Policy Benchmark = 22.5% OPERF Total Custom FI Benchmark, 20.0% Russell 3000 Index, 20.0% MSCI ACWI ex US IMI, 20.0% Russell 3000 + 300 BPS Qtr Lag, 12.5% Oregon Custom Real Estate Benchmark and 5.0% CPI + 400 bps.

OPERF Total Regular Account

Gross Performance and Peer Group Rankings as of March 31, 2017*

Performance vs Large Public Funds (>10B) (Gross)



*Versus Callan's Very Large Public Funds (> \$10 billion) Peer Group



Appendix

Global Economic Update

The Big Picture: “Risk On” Rally despite Political Uncertainty

- Impact of nationalist and protectionist policies in the US and abroad of concern.
- Heightened tensions between the U.S. and North Korea, Mexico, China.
- Growth in the U.S. continues to be positive but low.
 - Real U.S. GDP slowed more than expected in the first quarter, coming in at 0.7% lower than the 1% estimate
 - Outside the U.S. some signs of life. Eurozone GDP comes in at 1.7%. Only Greece experienced a contraction.
 - In Japan, growth remained weak but positive at 1.2% year-over-year (as of 12/31)
- Globally, rate policies continue to diverge
 - As expected, the Fed raised rates in March by 25 bps. The target rate now stands at .75-1%. It is widely expected that we will see an additional two rate hikes in 2017.
 - Outside the U.S., the Eurozone continues to pursue accommodative monetary policy in pursuit of economic growth.
- Unemployment picture a mixed bag globally.
 - In the U.S. unemployment reached 4.5%--the lowest level since 2007. Strengthens further in April to 4.4%
 - But Euro zone unemployment rate remains high at 9.5%.
- Headline inflation rose at the fastest rate in 5 years.
- Rising stock piles in the U.S. drive oil prices down
- Commodities (except for Gold) lost ground
- Consumer Confidence hit its highest level since December 2000 but consumer spending remained very low.

“Risk On” Rally Despite Political Uncertainty

What’s Driving the Rally

Index	2017 1st Qtr	Periods ended Dec. 31, 2016			
		Year	5 Yrs	10 Yrs	25 Yrs
U.S. Equity					
Russell 3000	5.74	12.74	14.67	7.07	9.29
S&P 500	6.07	11.96	14.66	6.95	9.15
Russell 2000	2.47	21.31	14.46	7.07	9.69
Non-U.S. Equity					
MSCI EAFE	7.25	1.00	6.53	0.75	4.95
MSCI Emerging Markets	11.44	11.19	1.28	1.84	–
MSCI ACWI ex USA Small Cap	8.78	3.91	7.74	2.89	–
Fixed Income					
Bloomberg Barclays Agg	0.82	2.65	2.23	4.34	5.63
90-Day T-Bill	0.10	0.33	0.12	0.80	2.71
Bloomberg Barclays Long G/C	1.58	6.67	4.07	6.85	7.58
Bloomberg Barclays GI Agg ex US	2.48	1.49	-1.39	2.44	4.73
Real Estate					
NCREIF Property	1.55	7.97	10.91	6.93	8.63
FTSE NAREIT Equity	1.16	8.52	12.01	5.08	11.13
Alternatives					
CS Hedge Fund	2.07	1.25	4.34	3.75	–
Cambridge PE*	–	9.17	13.05	10.59	15.53
Bloomberg Commodity	-2.33	11.77	-8.95	-5.57	2.55
Gold Spot Price	8.64	8.63	-5.97	6.08	4.82
Inflation – CPI-U	0.98	2.07	1.36	1.81	2.26

- Rally fueled by *expectations* that pro-growth policies will come to fruition: lower taxes; reduced regulation; infrastructure spending, e.g.
- Signs that the reality may not meet expectations in the short-term appear.
 - Mega Cap stocks do best; Financials & Energy stocks trail. Retail fared the worst (-4.75%) hurt by weak earnings .
- Outside the U.S., strong economic growth and a declining dollar helped developed and emerging markets move higher.
- Strong corporate balance sheets, low default rates, access to capital & search for yield support the fixed income markets, despite a rate hike in March.
- Commodities registered negative returns in the first quarter, hurt mostly by falling oil prices due to concerns over stockpiles in the U.S.
- Gold was up nearly 9% for the quarter.

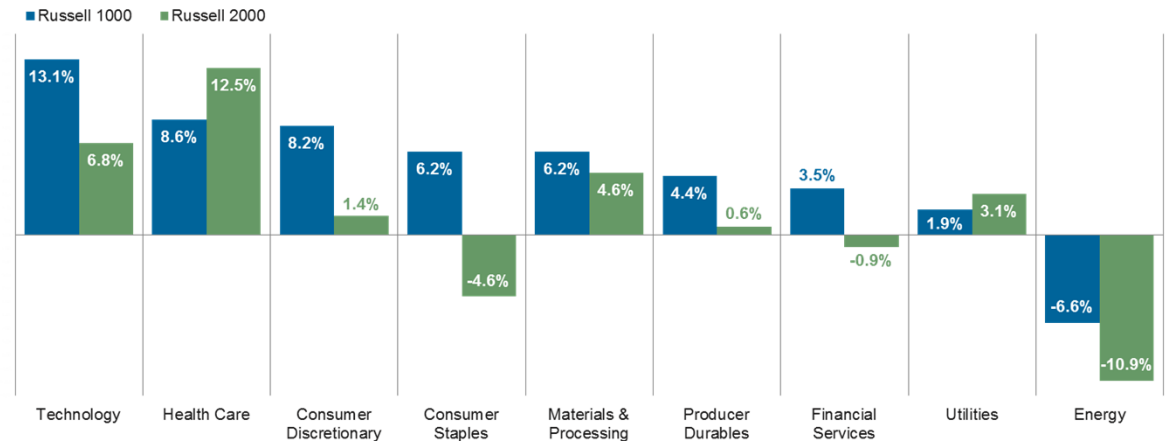
U.S. Equity Market Environment

For the Periods Ended March 31, 2017

- Growth outperformed value by a wide margin across the capitalization spectrum; the most pronounced difference was in large cap stocks.
- The Tech sector performed the best (+13.1%). Health Care—the worst performer in 2016—rebounded with an 8.6% return. The worst performing sector for the quarter was Energy (-6.6%).
- The equity market's subdued volatility in the first quarter was also noteworthy. The VIX, which measures the implied volatility of S&P 500 Index options, closed the quarter at 12, well below its long-term average (since 2004) of roughly 20.

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 15 Years
Large Cap Equity						
Large Cap Growth Style	9.18	14.80	10.31	12.66	8.88	7.43
Large Cap Value Style	3.77	19.40	8.48	12.94	6.78	8.11
Mid Cap Equity						
Mid Cap Growth Style	8.15	15.41	6.47	10.73	8.34	8.87
Mid Cap Value Style	3.98	20.33	8.79	13.43	8.31	10.46
Small Cap Equity						
Small Cap Growth Style	6.75	23.25	5.66	12.12	8.67	9.06
Small Cap Value Style	0.37	24.62	9.02	13.91	8.49	10.55

Economic Sector Quarter Performance (as of March 31, 2017)



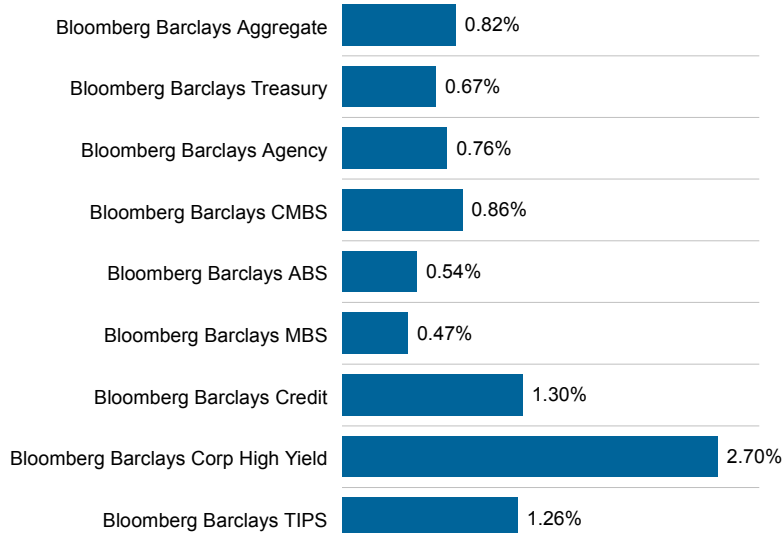
Source: Callan, Russell Investment Group

U.S. Fixed Income Market Environment

For the Periods Ended March 31, 2017

- U.S. Treasury yields were relatively range-bound in the first quarter despite a Fed hike in March.
- Investors continue to seek yield, benefitting investment grade, below investment grade and long duration credit.
- For the quarter, spreads were tighter overall in spite of record supply due to strong investor demand, low volatility, and a weaker dollar, which contributed to earnings strength for corporations.

Fixed Income Quarterly Returns Absolute Return



	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 15 Years
Broad Fixed Income						
Core Bond Style	0.95	1.14	3.03	2.84	4.85	5.11
Core Bond Plus Style	1.27	3.15	3.25	3.52	5.31	5.76
BB Barclays Aggregate	0.82	0.44	2.68	2.34	4.27	4.63
BB Barclays Gov/Credit	0.96	0.54	2.69	2.46	4.34	4.75
BB Barclays Government	0.68	-1.34	2.04	1.59	3.78	4.21
BB Barclays Credit	1.30	2.96	3.52	3.70	5.29	5.62
Blmbg:Corporate High Yld	2.70	16.39	4.56	6.82	7.46	8.43
Long-Term						
BB Barclays Long Gov/Credit	1.58	0.98	5.47	4.84	6.92	7.23
BB Barclays Long Government	1.45	-4.78	5.81	4.05	6.65	6.99
BB Barclays Long Credit	1.66	4.89	5.40	5.38	6.94	7.31
Citi Pension Discount Curve	1.40	0.14	6.93	6.60	8.91	9.10
Intermediate-Term						
BB Barclays Interm Aggregate	0.68	0.35	2.25	1.95	3.91	4.25
BB Barclays Interm Gov/Credit	0.78	0.42	2.01	1.88	3.76	4.14
Short-Term						
Money Market Funds (net)	0.08	0.16	0.07	0.04	0.61	1.14
ML Treasury 1-3 Year	0.26	0.25	0.72	0.64	2.00	2.37
90-Day Treasury Bills	0.10	0.36	0.17	0.14	0.68	1.32

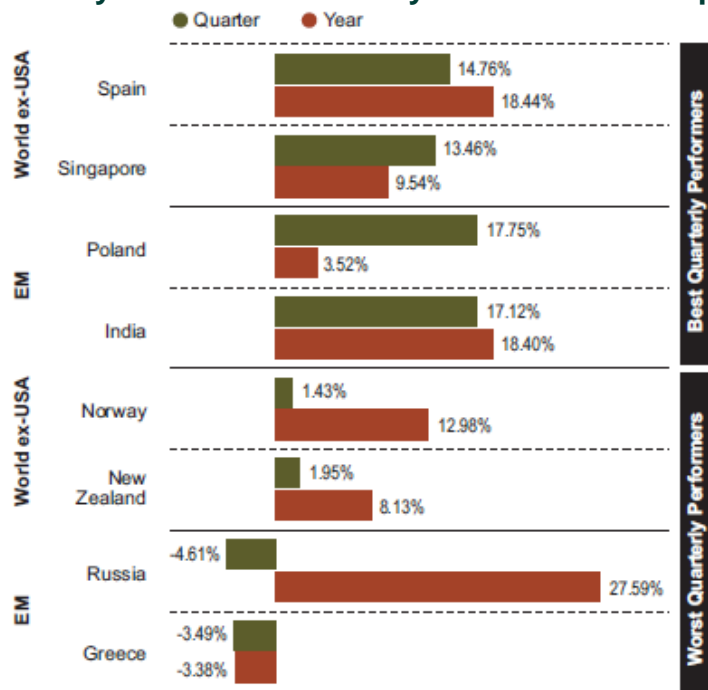
Source: Callan, Bloomberg

Non-U.S. Equity Market Environment

For the Periods Ended March 31, 2017

- Non-U.S. developed equity outperformed U.S. as improving economic data fueled Europe
- A weaker U.S. Dollar bolstered results by about 2.5%
- Gains spanned multiple countries including Spain (+14.8%), Germany (+8.4%), and France (+7.3%).
- Emerging markets outperformed developed markets and were also helped by a weaker U.S. Dollar, returning +11.4% for the first quarter.

Quarterly and Annual Country Performance Snapshot



Non-U.S. Equity	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 15 Years
MSCI ACWI ex USA	7.86	13.13	0.56	4.36	1.35	6.30
MSCI ACWI ex USA Growth	9.13	9.63	1.55	4.84	1.97	6.08
MSCI ACWI ex USA Value	6.68	16.68	-0.51	3.81	0.68	6.45
MSCI EAFE	7.25	11.67	0.50	5.83	1.05	5.74
MSCI EAFE (local)	4.71	18.00	7.26	10.70	2.33	4.44
Regional Equity						
MSCI Europe	7.44	9.76	-1.51	5.63	0.70	5.49
MSCI Europe (local)	6.02	19.56	7.02	10.27	3.12	4.55
MSCI Japan	4.49	14.44	6.02	6.82	0.63	4.89
MSCI Japan (local)	-0.17	13.46	8.85	13.50	0.05	3.68
MSCI Pacific ex Japan	11.76	18.39	2.17	5.34	4.36	9.96
MSCI Pacific ex Japan (loc)	7.93	19.45	6.77	9.67	4.48	7.85
Emerging/Frontier Markets						
MSCI Emerging Markets	11.44	17.21	1.18	0.81	2.72	9.51
MSCI Emerging Markets (loc)	7.76	15.06	5.61	5.07	4.90	9.75
MSCI Frontier Markets	8.89	12.86	-1.65	5.82	-0.56	--
Non-U.S. Small Cap Equity						
MSCI EAFE Small Cap	7.97	10.99	3.60	9.20	3.03	9.68
MSCI Em Mkts Small Cap	13.02	14.49	1.66	2.87	3.91	10.92

Sources: Callan, MSCI

TAB 6 – Corporate Governance Update
Annual Report

Glass, Lewis and Co. 2016 Proxy Season Review

Purpose

As required by *INV 605: Exercise of Voting Rights Accompanying Equity Securities*, to summarize and present votes cast by Glass, Lewis and Co. (“Glass Lewis”) on behalf of the OIC, and provide an update on the regulatory environment concerning proxy voting.

Background

As established in INV 605, the OIC recognizes that a) the quality of corporate governance can affect enterprise value and b) voting rights thus have economic value and must be managed prudently. The OIC retains ultimate authority over proxy votes and strives to ensure that corporations follow practices that advance enterprise value. Since most shareholders like the OIC do not have the resources to attend annual or special meetings at which voting occurs, corporations provide shareholders with the option to vote by proxy. In accordance with voting standards codified in OIC guidelines, the Council implements proxy voting through an independent, third-party research and voting vendor. Currently, Glass, Lewis and Co. (“Glass Lewis”) is engaged as the Council’s proxy vendor.

The majority of proxies voted are, by far, concerned with ordinary, technical corporate governance details, such as approving board candidates, committee memberships, auditor ratification, etc. Glass Lewis categorizes these as general and routine matters, and has established best practices and guidelines for each such category. Non-routine issues are handled on a case-by-case basis. On occasion, OST public equity managers will have a view that differs with Glass Lewis on how to vote specific proxies. In those instances, Staff will deliberate on the differences and potentially prepare recommendations to override the vendor’s guidelines. As provided for in INV 605, the Deputy State Treasurer and the Chief Investment Officer will review and approve or deny staff recommendations, or recommend that the proxy vote in question be brought before the OIC.

Shortly after the retention of Glass Lewis in 2006, the OIC adopted the MSCI All Country World Investable Market Index (ACWI IMI) as its Public Equity benchmark in order to broaden OPERF’s public equity allocation and reduce its “home country” bias. As a result of that benchmark change, the number of securities comprised by OPERF’s Public Equity portfolio has increased substantially, as has the corresponding number of proxy votes managed by Glass Lewis.

The year-over-year increase in proxy voting since 2006 is summarized below:

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Meetings	2,323	2,672	4,306	4,816	5,669	5,690	6,006	7,563	6,766	7,638
Resolutions	22,186	27,328	45,584	51,340	63,449	62,760	63,839	74,972	66,308	73,018

Included with this memo under separate cover is the 2017 Proxy Paper Guidelines which includes a summary of significant proxy updates.

Recommendation

None, information only.



2017 NORTH AMERICAN TRENDS
& HIGHLIGHTS FOR MEETINGS THROUGH MAY 30, 2017

AARON BERTINETTI

SENIOR VICE PRESIDENT, RESEARCH & ENGAGEMENT



GLASS LEWIS

AGENDA

- **OIC Voting Summary**
- **Proxy Season Trends**
- **Guideline Revisions**
- **Shareholder Proposal Highlights**
- **Emerging Shareholder Proposal Trends**
- **Director Elections**
- **Executive Compensation**
- **Regulatory and Q&A**

OIC PROXY VOTING SUMMARY - CY2016

	1Q2016	2Q2016	3Q2016	4Q2016	CY2016
US Meetings	162	1,414	149	143	1,868
Non-US Meetings	858	3,513	649	750	5,770
US Ballots	298	2,660	245	225	3,428
Non-US Ballots	1,245	5,735	903	1,121	9,004
Mgmt Resolutions	8,234	52,844	6,395	5,545	73,018
% Supported	79.8%	82.4%	84.1%	85.2%	82.5%
Shrhldr Resolutions	98	831	50	38	1,017
% Supported	27.6%	27.2%	44.0%	36.8%	33.9%

2017 PROXY SEASON TRENDS

Executive compensation

- Continues to be key focus for shareholders, with a high frequency year in US, Brexit impact in UK and new binding vote in France, amongst others
- Shareholders looking for long-term equity to be performance based
- Seeking enhanced disclosure, clarity and rationale of performance metrics and targets

Investors seeking more diverse boards

- Experience, background, skills
- Greater focus on gender, ethnicity, age, background, home country, tenure
- More companies using skills matrices

2017 PROXY SEASON TRENDS

Engagement is a game changer

- Widespread engagement with directors meeting directly with investors
- Impacting shareholder expectations and outcomes at meetings
- Continues to accelerate, supported by stewardship codes emerging across NA, Europe, Asia and long term practices in UK & Australia
- In last 18 months Glass Lewis analysts have engaged with over 4,500 companies, including formal meetings with approximately 1,500 of them

Regulatory uncertainty in US might be a blessing in disguise

- Dodd-Frank, climate, civil rights, shareholder rights, proxy advisors, Snap
- Fuel for an accelerated and increasingly sophisticated effort by shareholders and (some) companies to respond to shareholder and ESG concerns through effective stewardship and SHPs

2017 GUIDELINE REVISIONS – NORTH AMERICA

Election of directors

- Reduced thresholds for determining and recommending against overcommitted directors (5 board max for non-employee directors, 2 for executive offices) with additional pragmatic considerations
- Increased scrutiny of tenure and diversity whereby outliers (no women on board, average tenure of 10 years w/ no new directors in past 5 years, lack of core skills) which if related to broader underperformance of company may lead to discretionary negative recommendations
- Explicit IPO and spin off policy addressing the need for pragmatism and case-by-case analysis for unusual or restrictive governance practices

Other

- Updates to equity plan model, no drastic changes
- Sustainalytics integration as additional input to analysis, not recs
- Explicit gender pay equity policy

SHAREHOLDER PROPOSALS – TOP 10 ISSUES

Issue	%
Political Spending or Lobbying	12.53
Report/Action on Climate Change, Emissions, Sustainability & Environment	11.00
Proxy Access (Right/Amendments)	10.49
Independent Board Chairman/Separation of Chair and CEO	8.18
Misc. Issues (Proxy Voting)	4.60
Board Composition (Diversity/Size)	4.09
Misc. Human/Political Rights Policies (Holy Land/Country Selection Rules)	4.09
Right to Call a Special Meeting	4.09
Restricting Executive Compensation	3.32
Right to Act by Written Consent	3.07

SHAREHOLDER PROPOSAL HIGHLIGHTS

Quality of proposals is improving across market

- GL support is increasing, currently 48.6% across 391 proposals

Proxy access 3% shares/3 years/20% board is status quo

- GL supported all 27 proposals through May, with companies' own management supporting a third of those
- We've opposed 20 "fix-it" proposals to amend existing access

Enhancing accountability on climate change and sustainability

- GL supported 48.5% across 33 proposals through May
- Occidental received majority support in a watershed US meeting (49% in 2016), all eyes are now on Exxon

EMERGING SHAREHOLDER PROPOSAL TRENDS

Gender pay equity targeting banks

- GL supported 88% of 8 proposals
- Wells Fargo, JPMorgan, Bank of America and Citigroup

Board diversity

- GL supported 80% of 10 proposals
- Apple, Constellation Software, Tyson Foods and Discovery Communications

Employment diversity reporting targeting finance sector

- GL supported 14% of 7 proposals
- T. Rowe Price, Charles Schwab, First Republic, The Travelers Companies

Proxy voting policies at asset managers

- GL supported 0% of the 6 proposals
- Blackrock, T. Rowe Price and Franklin Resources

DIRECTORS - TOP 10 ISSUES FOR AN AGAINST REC

Issue	%
No independent lead or presiding director	17.6
Serves on too many boards	15.0
Board is not sufficiently independent	12.7
Affiliate/Insider on audit committee	12.4
Related party transactions	9.8
Affiliate/Insider on nominating/governance committee	8.2
Affiliate/Insider on compensation committee	7.9
CFO on board	5.6
Material weakness	4.5
Less than 75% Attendance	4.3

DIRECTOR ELECTIONS

Continued focus on outliers

- GL supported 90.4% of 21,396 director elections, GL supported 90.4%, recommended against 9.4% and abstained 0.2%
- Independence at board or committee level remains dominant issue
- Overboarding as a reason to recommend against has increased as expected with policy change in addition to increased scrutiny of tenure and diversity

Boards continue to be contested

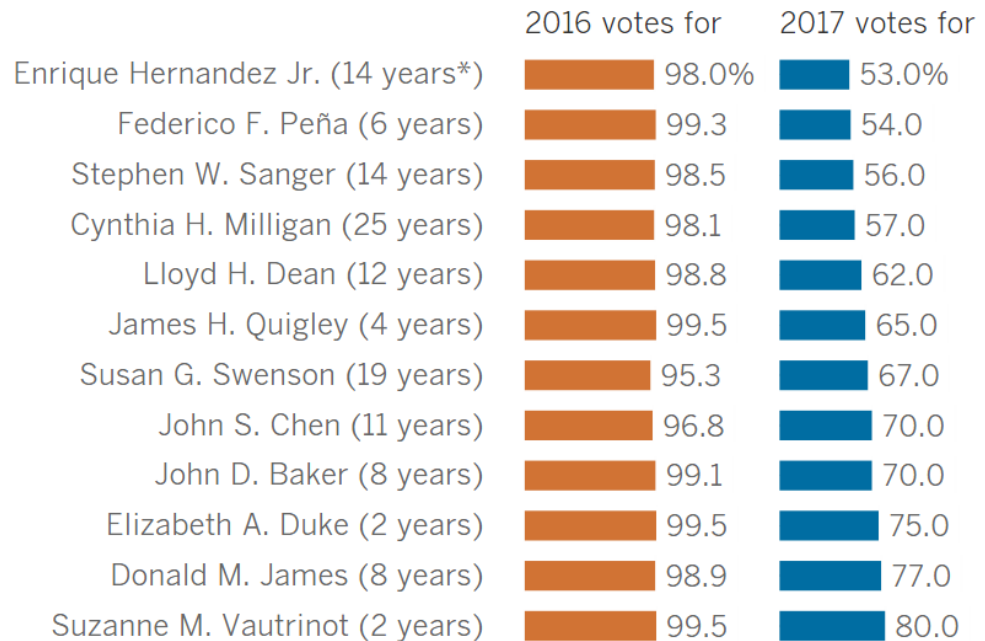
- Governance concerns have become a key tool in activist strategy
- GL has ramped engagement with activists and boards alike in response
- Arconic an iconic meeting with the CEO getting the boot for a soccer ball threat

A WELLS FARGO WAKE UP CALL!

A watershed meeting for shareholders, directors, governance and culture.

Shareholders overwhelmingly went after members of the risk committee, which aligned closely with GL's targeted approach at the corporate responsibility committee vs another advisor's approach of blaming everybody who has been there longer than 2 years.

Shareholder support for Wells Fargo board wanes



Source: Wells Fargo & Co. (*=board tenure)

James Rufus Koren / @latimesgraphics

SAY ON PAY - TOP 10 ISSUES FOR AN AGAINST REC

Issue	%
Pay and performance disconnect, sometimes sustained	58.28
Poor overall design	30.67
Large one-time awards	7.66
Poor overall compensation disclosure	6.43
Concerning pay practices	5.83
Not in shareholders' best interests	5.21
Insufficient response to previous shareholder concerns	5.20
High compensation levels, benchmark or target	3.37
Poor compensation structure/performance conditions	3.07
Negative changes to LTIP metrics or period	2.44

EXECUTIVE COMPENSATION

High volume SOP year

- GL has supported 84.1% of 2,044 SOPs
- Triennial year for companies has increased SOPs substantially (15-20%), with triennials having worse practices and/or skeletons buried in earlier years
- Poor alignment & design remain the dominant issues, with large one-time awards, poor disclosure and unresponsiveness to shareholders other key issues
- One third of companies with D or F grade in P4P typically receiving against
- GL supported 83.6% of 830 equity grant and amendment proposals, with evergreen provisions and cost as top concerns
- Canadian SOP increasingly prevalent, GL supported 91.8% of 182 proposals

A quantum test

- CSX provides a test case for the value of a single individual (for the 2nd time)
- Shareholders will decide if \$200m+ for a “Rockstar Railway CEO” is reasonable for the \$12.4 billion reasons the market has given in just 3 months

REGULATORY AND Q&A

Post-meeting questions can be sent to abertinetti@glasslewis.com



Oregon State Treasury

CORPORATE GOVERNANCE / ESG

Seeding and harvesting long-term, sustainable performance

Jennifer J. Peet

Deputy General Counsel

Director of Compliance and Corporate Governance

June 7, 2017

INVESTMENT BELIEFS

2.) ASSET ALLOCATION DRIVES RISK AND RETURN

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

- Risk is multi-faceted and may include, but is not limited to, the following types of specific risks: principal loss; opportunity cost; concentration risk; leverage and illiquidity risk; volatility and valuation risk; interest rate and inflation risk; and environmental, social and governance (ESG) risks.



INVESTMENT BELIEFS

7.) TRANSPARENT CAPITAL MARKETS ARE ESSENTIAL FOR THE LONG-TERM SUCCESS OF OIC/OST INVESTMENT ACTIVITIES

- A. The OIC recognizes that the quality of regulation and corporate governance can affect the long-term value of its investments.**
- The Council promotes open, competitive market structures to ensure accurate and timely price discovery/asset valuation.
- B. The OIC also recognizes that voting rights have economic value and therefore must be treated as a fund or beneficiary asset.**
- The OIC shall vote shares in its capacity as fiduciary and based solely on the economic merits of specific proxy proposals.



OVERVIEW

What is corporate governance?

The system of rules, practices and processes by which a company is directed and controlled.

Corporate governance essentially involves balancing the interests of a company's many stakeholders, such as shareholders, management, customers, suppliers, financiers, government and the community.

'Environmental, Social and Governance (ESG) Criteria'

Environmental criteria consider how a company performs as a steward of the natural environment. Social criteria examine how a company manages relationships with its employees, suppliers, customers and the communities in which it operates. Governance deals with a company's leadership, executive compensation, audits and internal controls, and shareholder rights.



OVERVIEW

Moving toward a holistic corporate governance and ESG risk screening program

Long-term value and sustainable portfolio holdings on behalf of beneficiaries

ENVIRONMENTAL

- Accurate disclosure
- Sustainability
- Water
- Climate-related risk and opportunities

SOCIAL

- Customer treatment
- Human capital
- Worker treatment

GOVERNANCE

- Shareholder rights
- Transparency
- Board Diversity
- Proxy ballot access
- Compensation
- Board oversight



OVERVIEW

Moving toward a holistic corporate governance and ESG risk screening program

SHAREHOLDER ACTION

COLLABORATION / COALITIONS



Engagement



Proxy Voting



**Securities
litigation**



**Regulatory
Advocacy**



**Public
awareness**



OVERVIEW

Moving toward a holistic corporate governance and ESG risk screening program

SEEDING



Engagement



Proxy Voting



Securities
litigation



Regulatory
Advocacy



Public
awareness

HARVESTING



Empirical ESG
research



LONG-TERM PERFORMANCE

Engagement

30 Percent Coalition
Council of Institutional Investors
Direct engagement with companies

Proxy Voting

OST Corporate Governance Program

Regulatory Advocacy

Department of Labor
Securities and Exchange Commission
White House

Securities Litigation

\$4.9 million in litigation proceeds
\$1 million credit default swaps
\$3 million State Street FX award anticipated Q2 2017
Claims filed in 4 international cases involving VW, Porsche, Petrobras and Toshiba



2016 PROXY VOTING



Proxy Voting

Research and votes at annual meetings are performed via Glass Lewis & Co., a proxy voting agent retained by the OIC

MEETINGS

1,868
Domestic

5,770
Non-U.S.

BALLOTS

3,428
Domestic

9,004
Non-U.S.

RESOLUTIONS

MANAGEMENT

73,018

Supported 82%

SHAREHOLDER

1,017

Supported 34%



SECURITIES LITIGATION



Securities litigation

Treasury works in conjunction with the Oregon Attorney General and Department of Justice to file cases, seek accountability and restore funds

RECOVERED

2011	\$473,289.00
2012	\$452,844.00
2013	\$1,434,731.00
2014	\$2,408,360.00
2015	\$3,117,660.00
2016	\$5,894,477.00



COALITIONS



2017 PRIORITIES

Moving toward a holistic corporate governance and ESG risk screening program

LONG-TERM THINKING

1. **Gaining authorization for ESG risk officer.**
2. **Making proxy votes count.**
3. **Carefully monitoring regulatory environment to protect shareholder rights.**
4. **Improving transparency and public awareness.**





Oregon State Treasury

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2017

PROXY PAPER™

GUIDELINES

AN OVERVIEW OF THE GLASS LEWIS
APPROACH TO PROXY ADVICE

UNITED STATES



GLASS LEWIS

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Guidelines Introduction

Glass Lewis evaluates these guidelines on an ongoing basis and formally updates them on an annual basis. This year we've made noteworthy revisions in the following areas, which are summarized below but discussed in greater detail in the relevant section of this document:

SUMMARY OF CHANGES FOR THE 2017 UNITED STATES POLICY GUIDELINES

DIRECTOR OVERBOARDING POLICY

The 2017 guidelines codify the policies outlined in last year's update. Glass Lewis will generally recommend voting against a director who serves as an executive officer of any public company while serving on a total of more than two public company boards and any other director who serves on a total of more than five public company boards.

When determining whether a director's service on an excessive number of boards may limit the ability of the director to devote sufficient time to board duties, we may consider relevant factors such as the size and location of the other companies where the director serves on the board, the director's board duties at the companies in question, whether the director serves on the board of any large privately-held companies, the director's tenure on the boards in question, and the director's attendance record at all companies.

We may also refrain from recommending against certain directors if the company provides sufficient rationale for their continued board service. The rationale should allow shareholders to evaluate the scope of the directors' other commitments as well as their contributions to the board including specialized knowledge of the company's industry, strategy or key markets, the diversity of skills, perspective and background they provide, and other relevant factors.

Because we believe that executives will primarily devote their attention to executive duties, we generally will not recommend that shareholders vote against overcommitted directors at the companies where they serve as an executive.

GOVERNANCE FOLLOWING AN IPO OR SPIN-OFF

We clarified how we approach corporate governance at newly-public entities. While we generally believe that such companies should be allowed adequate time to fully comply with marketplace listing requirements and meet basic governance standards, Glass Lewis will also review the terms of the company's governing documents in order to determine whether shareholder rights are being severely restricted from the outset.

In cases where we believe the board has approved governing documents that significantly restrict the ability of shareholders to effect change, we will consider recommending that shareholders vote against the members of the governance committee or the directors that served at the time of the governing documents' adoption, depending on the severity of the concern.

The new guidelines outline which specific areas of governance we review. These areas include anti-takeover mechanisms, supermajority vote requirements, and general shareholder rights such as the ability of shareholders to remove directors and call special meetings.

BOARD EVALUATION AND REFRESHMENT

We have clarified our approach to board evaluation, succession planning and refreshment. Generally speaking, Glass Lewis believes a robust board evaluation process — one focused on the assessment and alignment of director skills with company strategy — is more effective than solely relying on age or tenure limits.

I. A Board of Directors that Serves Shareholder Interest

ELECTION OF DIRECTORS

The purpose of Glass Lewis' proxy research and advice is to facilitate shareholder voting in favor of governance structures that will drive performance, create shareholder value and maintain a proper tone at the top. Glass Lewis looks for talented boards with a record of protecting shareholders and delivering value over the medium- and long-term. We believe that a board can best protect and enhance the interests of shareholders if it is sufficiently independent, has a record of positive performance, and consists of individuals with diverse backgrounds and a breadth and depth of relevant experience.

INDEPENDENCE

The independence of directors, or lack thereof, is ultimately demonstrated through the decisions they make. In assessing the independence of directors, we will take into consideration, when appropriate, whether a director has a track record indicative of making objective decisions. Likewise, when assessing the independence of directors we will also examine when a director's track record on multiple boards indicates a lack of objective decision-making. Ultimately, we believe the determination of whether a director is independent or not must take into consideration both compliance with the applicable independence listing requirements as well as judgments made by the director.

We look at each director nominee to examine the director's relationships with the company, the company's executives, and other directors. We do this to evaluate whether personal, familial, or financial relationships (not including director compensation) may impact the director's decisions. We believe that such relationships make it difficult for a director to put shareholders' interests above the director's or the related party's interests. We also believe that a director who owns more than 20% of a company can exert disproportionate influence on the board, and therefore believe such a director's independence may be hampered, in particular when serving on the audit committee.

Thus, we put directors into three categories based on an examination of the type of relationship they have with the company:

Independent Director — An independent director has no material financial, familial or other current relationships with the company, its executives, or other board members, except for board service and standard fees paid for that service. Relationships that existed within three to five years¹ before the inquiry are usually considered "current" for purposes of this test.

Affiliated Director — An affiliated director has, (or within the past three years, had) a material financial, familial or other relationship with the company or its executives, but is not an employee of the company.² This includes directors whose employers have a material financial relationship with the company.³ In addition, we view a director who either owns or controls 20% or more of the company's voting stock, or is an employee or affiliate of an entity that controls such amount, as an affiliate.⁴

¹ NASDAQ originally proposed a five-year look-back period but both it and the NYSE ultimately settled on a three-year look-back prior to finalizing their rules. A five-year standard is more appropriate, in our view, because we believe that the unwinding of conflicting relationships between former management and board members is more likely to be complete and final after five years. However, Glass Lewis does not apply the five-year look-back period to directors who have previously served as executives of the company on an interim basis for less than one year.

² If a company does not consider a non-employee director to be independent, Glass Lewis will classify that director as an affiliate.

³ We allow a five-year grace period for former executives of the company or merged companies who have consulting agreements with the surviving company. (We do not automatically recommend voting against directors in such cases for the first five years.) If the consulting agreement persists after this five-year grace period, we apply the materiality thresholds outlined in the definition of "material."

⁴ This includes a director who serves on a board as a representative (as part of his or her basic responsibilities) of an investment firm with greater than 20% ownership. However, while we will generally consider him/her to be affiliated, we will not recommend voting against unless (i) the investment firm has disproportionate board representation or (ii) the director serves on the audit committee.

We view 20% shareholders as affiliates because they typically have access to and involvement with the management of a company that is fundamentally different from that of ordinary shareholders. More importantly, 20% holders may have interests that diverge from those of ordinary holders, for reasons such as the liquidity (or lack thereof) of their holdings, personal tax issues, etc.

Glass Lewis applies a three-year look back period to all directors who have an affiliation with the company other than former employment, for which we apply a five-year look back.

Definition of **“Material”**: A material relationship is one in which the dollar value exceeds:

- \$50,000 (or where no amount is disclosed) for directors who are paid for a service they have agreed to perform for the company, outside of their service as a director, including professional or other services; or
- \$120,000 (or where no amount is disclosed) for those directors employed by a professional services firm such as a law firm, investment bank, or consulting firm and the company pays the firm, not the individual, for services.⁵ This dollar limit would also apply to charitable contributions to schools where a board member is a professor; or charities where a director serves on the board or is an executive;⁶ and any aircraft and real estate dealings between the company and the director’s firm; or
- 1% of either company’s consolidated gross revenue for other business relationships (e.g., where the director is an executive officer of a company that provides services or products to or receives services or products from the company).⁷

Definition of **“Familial”** — Familial relationships include a person’s spouse, parents, children, siblings, grandparents, uncles, aunts, cousins, nieces, nephews, in-laws, and anyone (other than domestic employees) who shares such person’s home. A director is an affiliate if: i) he or she has a family member who is employed by the company and receives more than \$120,000 in annual compensation; or, ii) he or she has a family member who is employed by the company and the company does not disclose this individual’s compensation.

Definition of **“Company”** — A company includes any parent or subsidiary in a group with the company or any entity that merged with, was acquired by, or acquired the company.

Inside Director — An inside director simultaneously serves as a director and as an employee of the company. This category may include a board chair who acts as an employee of the company or is paid as an employee of the company. In our view, an inside director who derives a greater amount of income as a result of affiliated transactions with the company rather than through compensation paid by the company (i.e., salary, bonus, etc. as a company employee) faces a conflict between making decisions that are in the best interests of the company versus those in the director’s own best interests. Therefore, we will recommend voting against such a director.

Additionally, we believe a director who is currently serving in an interim management position should be considered an insider, while a director who previously served in an interim management position for less than one year and is no longer serving in such capacity is considered independent. Moreover, a director who previously served in an interim management position for over one year and is no longer serving in such capacity is considered an affiliate for five years following the date of his/her resignation or departure from the interim management position.

⁵ We may deem such a transaction to be immaterial where the amount represents less than 1% of the firm’s annual revenues and the board provides a compelling rationale as to why the director’s independence is not affected by the relationship.

⁶ We will generally take into consideration the size and nature of such charitable entities in relation to the company’s size and industry along with any other relevant factors such as the director’s role at the charity. However, unlike for other types of related party transactions, Glass Lewis generally does not apply a look-back period to affiliated relationships involving charitable contributions; if the relationship between the director and the school or charity ceases, or if the company discontinues its donations to the entity, we will consider the director to be independent.

⁷ This includes cases where a director is employed by, or closely affiliated with, a private equity firm that profits from an acquisition made by the company. Unless disclosure suggests otherwise, we presume the director is affiliated.

VOTING RECOMMENDATIONS ON THE BASIS OF BOARD INDEPENDENCE

Glass Lewis believes a board will be most effective in protecting shareholders' interests if it is at least two-thirds independent. We note that each of the Business Roundtable, the Conference Board, and the Council of Institutional Investors advocates that two-thirds of the board be independent. Where more than one-third of the members are affiliated or inside directors, we typically⁸ recommend voting against some of the inside and/or affiliated directors in order to satisfy the two-thirds threshold.

In the case of a less than two-thirds independent board, Glass Lewis strongly supports the existence of a presiding or lead director with authority to set the meeting agendas and to lead sessions outside the insider chair's presence.

In addition, we scrutinize avowedly "independent" chairmen and lead directors. We believe that they should be unquestionably independent or the company should not tout them as such.

COMMITTEE INDEPENDENCE

We believe that only independent directors should serve on a company's audit, compensation, nominating, and governance committees.⁹ We typically recommend that shareholders vote against any affiliated or inside director seeking appointment to an audit, compensation, nominating, or governance committee, or who has served in that capacity in the past year.

Pursuant to Section 952 of the Dodd-Frank Act, as of January 11, 2013, the SEC approved new listing requirements for both the NYSE and NASDAQ which require that boards apply enhanced standards of independence when making an affirmative determination of the independence of compensation committee members. Specifically, when making this determination, in addition to the factors considered when assessing general director independence, the board's considerations must include: (i) the source of compensation of the director, including any consulting, advisory or other compensatory fee paid by the listed company to the director (the "Fees Factor"); and (ii) whether the director is affiliated with the listing company, its subsidiaries, or affiliates of its subsidiaries (the "Affiliation Factor").

Glass Lewis believes it is important for boards to consider these enhanced independence factors when assessing compensation committee members. However, as discussed above in the section titled Independence, we apply our own standards when assessing the independence of directors, and these standards also take into account consulting and advisory fees paid to the director, as well as the director's affiliations with the company and its subsidiaries and affiliates. We may recommend voting against compensation committee members who are not independent based on our standards.

INDEPENDENT CHAIR

Glass Lewis believes that separating the roles of CEO (or, more rarely, another executive position) and chair creates a better governance structure than a combined CEO/chair position. An executive manages the business according to a course the board charts. Executives should report to the board regarding their performance in achieving goals set by the board. This is needlessly complicated when a CEO chairs the board, since a CEO/chair presumably will have a significant influence over the board.

While many companies have an independent lead or presiding director who performs many of the same functions of an independent chair (e.g., setting the board meeting agenda), we do not believe this alternate form of independent board leadership provides as robust protection for shareholders as an independent chair.

⁸ With a staggered board, if the affiliates or insiders that we believe should not be on the board are not up for election, we will express our concern regarding those directors, but we will not recommend voting against the other affiliates or insiders who are up for election just to achieve two-thirds independence. However, we will consider recommending voting against the directors subject to our concern at their next election if the issue giving rise to the concern is not resolved.

⁹ We will recommend voting against an audit committee member who owns 20% or more of the company's stock, and we believe that there should be a maximum of one director (or no directors if the committee is comprised of less than three directors) who owns 20% or more of the company's stock on the compensation, nominating, and governance committees.

It can become difficult for a board to fulfill its role of overseer and policy setter when a CEO/chair controls the agenda and the boardroom discussion. Such control can allow a CEO to have an entrenched position, leading to longer-than-optimal terms, fewer checks on management, less scrutiny of the business operation, and limitations on independent, shareholder-focused goal-setting by the board.

A CEO should set the strategic course for the company, with the board's approval, and the board should enable the CEO to carry out the CEO's vision for accomplishing the board's objectives. Failure to achieve the board's objectives should lead the board to replace that CEO with someone in whom the board has confidence.

Likewise, an independent chair can better oversee executives and set a pro-shareholder agenda without the management conflicts that a CEO and other executive insiders often face. Such oversight and concern for shareholders allows for a more proactive and effective board of directors that is better able to look out for the interests of shareholders.

Further, it is the board's responsibility to select a chief executive who can best serve a company and its shareholders and to replace this person when his or her duties have not been appropriately fulfilled. Such a replacement becomes more difficult and happens less frequently when the chief executive is also in the position of overseeing the board.

Glass Lewis believes that the installation of an independent chair is almost always a positive step from a corporate governance perspective and promotes the best interests of shareholders. Further, the presence of an independent chair fosters the creation of a thoughtful and dynamic board, not dominated by the views of senior management. Encouragingly, many companies appear to be moving in this direction—one study indicates that only 10 percent of incoming CEOs in 2014 were awarded the chair title, versus 48 percent in 2002.¹⁰ Another study finds that 48 percent of S&P 500 boards now separate the CEO and chair roles, up from 37 percent in 2009, although the same study found that only 29 percent of S&P 500 boards have truly independent chairs.¹¹

We do not recommend that shareholders vote against CEOs who chair the board. However, we typically recommend that our clients support separating the roles of chair and CEO whenever that question is posed in a proxy (typically in the form of a shareholder proposal), as we believe that it is in the long-term best interests of the company and its shareholders.

Further, where the company has neither an independent chair nor independent lead director, we will recommend voting against the chair of the governance committee.

PERFORMANCE

The most crucial test of a board's commitment to the company and its shareholders lies in the actions of the board and its members. We look at the performance of these individuals as directors and executives of the company and of other companies where they have served.

We find that a director's past conduct is often indicative of future conduct and performance. We often find directors with a history of overpaying executives or of serving on boards where avoidable disasters have occurred serving on the boards of companies with similar problems. Glass Lewis has a proprietary database of directors serving at over 8,000 of the most widely held U.S. companies. We use this database to track the performance of directors across companies.

VOTING RECOMMENDATIONS ON THE BASIS OF PERFORMANCE

We typically recommend that shareholders vote against directors who have served on boards or as executives of companies with records of poor performance, inadequate risk oversight, excessive compensation, audit- or accounting-related issues, and/or other indicators of mismanagement or actions against the interests of

¹⁰ Ken Favaro, Per-Ola Karlsson and Gary L. Nelson. "The \$112 Billion CEO Succession Problem." (*Strategy+Business*, Issue 79, Summer 2015).

¹¹ Spencer Stuart Board Index, 2015, p.20.

shareholders. We will reevaluate such directors based on, among other factors, the length of time passed since the incident giving rise to the concern, shareholder support for the director, the severity of the issue, the director's role (e.g., committee membership), director tenure at the subject company, whether ethical lapses accompanied the oversight lapse, and evidence of strong oversight at other companies.

Likewise, we examine the backgrounds of those who serve on key board committees to ensure that they have the required skills and diverse backgrounds to make informed judgments about the subject matter for which the committee is responsible.

We believe shareholders should avoid electing directors who have a record of not fulfilling their responsibilities to shareholders at any company where they have held a board or executive position. We typically recommend voting against:

1. A director who fails to attend a minimum of 75% of board and applicable committee meetings, calculated in the aggregate.¹²
2. A director who belatedly filed a significant form(s) 4 or 5, or who has a pattern of late filings if the late filing was the director's fault (we look at these late filing situations on a case-by-case basis).
3. A director who is also the CEO of a company where a serious and material restatement has occurred after the CEO had previously certified the pre-restatement financial statements.
4. A director who has received two against recommendations from Glass Lewis for identical reasons within the prior year at different companies (the same situation must also apply at the company being analyzed).
5. All directors who served on the board if, for the last three years, the company's performance has been in the bottom quartile of the sector and the directors have not taken reasonable steps to address the poor performance.

BOARD RESPONSIVENESS

Glass Lewis believes that any time 25% or more of shareholders vote contrary to the recommendation of management, the board should, depending on the issue, demonstrate some level of responsiveness to address the concerns of shareholders. These include instances when 25% or more of shareholders (excluding abstentions and broker non-votes): WITHHOLD votes from (or vote AGAINST) a director nominee, vote AGAINST a management-sponsored proposal, or vote FOR a shareholder proposal. In our view, a 25% threshold is significant enough to warrant a close examination of the underlying issues and an evaluation of whether or not a board response was warranted and, if so, whether the board responded appropriately following the vote. While the 25% threshold alone will not automatically generate a negative vote recommendation from Glass Lewis on a future proposal (e.g., to recommend against a director nominee, against a say-on-pay proposal, etc.), it may be a contributing factor to our recommendation to vote against management's recommendation in the event we determine that the board did not respond appropriately.

As a general framework, our evaluation of board responsiveness involves a review of publicly available disclosures (e.g., the proxy statement, annual report, 8-Ks, company website, etc.) released following the date of the company's last annual meeting up through the publication date of our most current Proxy Paper. Depending on the specific issue, our focus typically includes, but is not limited to, the following:

- At the board level, any changes in directorships, committee memberships, disclosure of related party transactions, meeting attendance, or other responsibilities;

¹² However, where a director has served for less than one full year, we will typically not recommend voting against for failure to attend 75% of meetings. Rather, we will note the poor attendance with a recommendation to track this issue going forward. We will also refrain from recommending to vote against directors when the proxy discloses that the director missed the meetings due to serious illness or other extenuating circumstances.

- Any revisions made to the company’s articles of incorporation, bylaws or other governance documents;
- Any press or news releases indicating changes in, or the adoption of, new company policies, business practices or special reports; and
- Any modifications made to the design and structure of the company’s compensation program, as well as an assessment of the company’s engagement with shareholders on compensation issues as discussed in the CD&A, particularly following a material vote against a company’s say-on-pay.

Our Proxy Paper analysis will include a case-by-case assessment of the specific elements of board responsiveness that we examined along with an explanation of how that assessment impacts our current voting recommendations.

THE ROLE OF A COMMITTEE CHAIR

Glass Lewis believes that a designated committee chair maintains primary responsibility for the actions of his or her respective committee. As such, many of our committee-specific voting recommendations are against the applicable committee chair rather than the entire committee (depending on the seriousness of the issue). However, in cases where we would ordinarily recommend voting against a committee chair but the chair is not specified, we apply the following general rules, which apply throughout our guidelines:

- If there is no committee chair, we recommend voting against the longest-serving committee member or, if the longest-serving committee member cannot be determined, the longest-serving board member serving on the committee (i.e., in either case, the “senior director”); and
- If there is no committee chair, but multiple senior directors serving on the committee, we recommend voting against both (or all) such senior directors.

In our view, companies should provide clear disclosure of which director is charged with overseeing each committee. In cases where that simple framework is ignored and a reasonable analysis cannot determine which committee member is the designated leader, we believe shareholder action against the longest serving committee member(s) is warranted. Again, this only applies if we would ordinarily recommend voting against the committee chair but there is either no such position or no designated director in such role.

On the contrary, in cases where there is a designated committee chair and the recommendation is to vote against the committee chair, but the chair is not up for election because the board is staggered, we do not recommend voting against any members of the committee who are up for election; rather, we will note the concern with regard to the committee chair.

AUDIT COMMITTEES AND PERFORMANCE

Audit committees play an integral role in overseeing the financial reporting process because “[v]ibrant and stable capital markets depend on, among other things, reliable, transparent, and objective financial information to support an efficient and effective capital market process. The vital oversight role audit committees play in the process of producing financial information has never been more important.”¹³

When assessing an audit committee’s performance, we are aware that an audit committee does not prepare financial statements, is not responsible for making the key judgments and assumptions that affect the financial statements, and does not audit the numbers or the disclosures provided to investors. Rather, an audit committee member monitors and oversees the process and procedures that management and auditors perform. The 1999 Report and Recommendations of the Blue Ribbon Committee on Improving the Effectiveness of Corporate Audit Committees stated it best:

¹³ Audit Committee Effectiveness – What Works Best.” PricewaterhouseCoopers. The Institute of Internal Auditors Research Foundation. 2005.

A proper and well-functioning system exists, therefore, when the three main groups responsible for financial reporting — the full board including the audit committee, financial management including the internal auditors, and the outside auditors — form a ‘three legged stool’ that supports responsible financial disclosure and active participatory oversight. However, in the view of the Committee, the audit committee must be ‘first among equals’ in this process, since the audit committee is an extension of the full board and hence the ultimate monitor of the process.

STANDARDS FOR ASSESSING THE AUDIT COMMITTEE

For an audit committee to function effectively on investors’ behalf, it must include members with sufficient knowledge to diligently carry out their responsibilities. In its audit and accounting recommendations, the Conference Board Commission on Public Trust and Private Enterprise said “members of the audit committee must be independent and have both knowledge and experience in auditing financial matters.”¹⁴

We are skeptical of audit committees where there are members that lack expertise as a Certified Public Accountant (CPA), Chief Financial Officer (CFO) or corporate controller, or similar experience. While we will not necessarily recommend voting against members of an audit committee when such expertise is lacking, we are more likely to recommend voting against committee members when a problem such as a restatement occurs and such expertise is lacking.

Glass Lewis generally assesses audit committees against the decisions they make with respect to their oversight and monitoring role. The quality and integrity of the financial statements and earnings reports, the completeness of disclosures necessary for investors to make informed decisions, and the effectiveness of the internal controls should provide reasonable assurance that the financial statements are materially free from errors. The independence of the external auditors and the results of their work all provide useful information by which to assess the audit committee.

When assessing the decisions and actions of the audit committee, we typically defer to its judgment and generally recommend voting in favor of its members. However, we will consider recommending that shareholders vote against the following:¹⁵

1. All members of the audit committee when options were backdated, there is a lack of adequate controls in place, there was a resulting restatement, and disclosures indicate there was a lack of documentation with respect to the option grants.
2. The audit committee chair, if the audit committee does not have a financial expert or the committee’s financial expert does not have a demonstrable financial background sufficient to understand the financial issues unique to public companies.
3. The audit committee chair, if the audit committee did not meet at least four times during the year.
4. The audit committee chair, if the committee has less than three members.
5. Any audit committee member who sits on more than three public company audit committees, unless the audit committee member is a retired CPA, CFO, controller or has similar experience, in which case the limit shall be four committees, taking time and availability into consideration including a review of the audit committee member’s attendance at all board and committee meetings.¹⁶

¹⁴ Commission on Public Trust and Private Enterprise. The Conference Board. 2003.

¹⁵ As discussed under the section labeled “Committee Chair,” where the recommendation is to vote against the committee chair but the chair is not up for election because the board is staggered, we do not recommend voting against the members of the committee who are up for election; rather, we will note the concern with regard to the committee chair.

¹⁶ Glass Lewis may exempt certain audit committee members from the above threshold if, upon further analysis of relevant factors such as the director’s experience, the size, industry-mix and location of the companies involved and the director’s attendance at all the companies, we can reasonably determine that the audit committee member is likely not hindered by multiple audit committee commitments.

6. All members of an audit committee who are up for election and who served on the committee at the time of the audit, if audit and audit-related fees total one-third or less of the total fees billed by the auditor.
7. The audit committee chair when tax and/or other fees are greater than audit and audit-related fees paid to the auditor for more than one year in a row (in which case we also recommend against ratification of the auditor).
8. All members of an audit committee where non-audit fees include fees for tax services (including, but not limited to, such things as tax avoidance or shelter schemes) for senior executives of the company. Such services are prohibited by the Public Company Accounting Oversight Board (“PCAOB”).
9. All members of an audit committee that reappointed an auditor that we no longer consider to be independent for reasons unrelated to fee proportions.
10. All members of an audit committee when audit fees are excessively low, especially when compared with other companies in the same industry.
11. The audit committee chair¹⁷ if the committee failed to put auditor ratification on the ballot for shareholder approval. However, if the non-audit fees or tax fees exceed audit plus audit-related fees in either the current or the prior year, then Glass Lewis will recommend voting against the entire audit committee.
12. All members of an audit committee where the auditor has resigned and reported that a section 10A¹⁸ letter has been issued.
13. All members of an audit committee at a time when material accounting fraud occurred at the company.¹⁹
14. All members of an audit committee at a time when annual and/or multiple quarterly financial statements had to be restated, and any of the following factors apply:
 - The restatement involves fraud or manipulation by insiders;
 - The restatement is accompanied by an SEC inquiry or investigation;
 - The restatement involves revenue recognition;
 - The restatement results in a greater than 5% adjustment to costs of goods sold, operating expense, or operating cash flows; or
 - The restatement results in a greater than 5% adjustment to net income, 10% adjustment to assets or shareholders equity, or cash flows from financing or investing activities.
15. All members of an audit committee if the company repeatedly fails to file its financial reports in a timely fashion. For example, the company has filed two or more quarterly or annual financial statements late within the last five quarters.

¹⁷ As discussed under the section labeled “Committee Chair,” in all cases, if the chair of the committee is not specified, we recommend voting against the director who has been on the committee the longest.

¹⁸ Auditors are required to report all potential illegal acts to management and the audit committee unless they are clearly inconsequential in nature. If the audit committee or the board fails to take appropriate action on an act that has been determined to be a violation of the law, the independent auditor is required to send a section 10A letter to the SEC. Such letters are rare and therefore we believe should be taken seriously.

¹⁹ Research indicates that revenue fraud now accounts for over 60% of SEC fraud cases, and that companies that engage in fraud experience significant negative abnormal stock price declines—facing bankruptcy, delisting, and material asset sales at much higher rates than do non-fraud firms (Committee of Sponsoring Organizations of the Treadway Commission. “Fraudulent Financial Reporting: 1998-2007.” May 2010).

16. All members of an audit committee when it has been disclosed that a law enforcement agency has charged the company and/or its employees with a violation of the Foreign Corrupt Practices Act (FCPA).
17. All members of an audit committee when the company has aggressive accounting policies and/or poor disclosure or lack of sufficient transparency in its financial statements.
18. All members of the audit committee when there is a disagreement with the auditor and the auditor resigns or is dismissed (e.g., the company receives an adverse opinion on its financial statements from the auditor).
19. All members of the audit committee if the contract with the auditor specifically limits the auditor's liability to the company for damages.²⁰
20. All members of the audit committee who served since the date of the company's last annual meeting, and when, since the last annual meeting, the company has reported a material weakness that has not yet been corrected, or, when the company has an ongoing material weakness from a prior year that has not yet been corrected.

We also take a dim view of audit committee reports that are boilerplate, and which provide little or no information or transparency to investors. When a problem such as a material weakness, restatement or late filings occurs, we take into consideration, in forming our judgment with respect to the audit committee, the transparency of the audit committee report.

COMPENSATION COMMITTEE PERFORMANCE

Compensation committees have a critical role in determining the compensation of executives. This includes deciding the basis on which compensation is determined, as well as the amounts and types of compensation to be paid. This process begins with the hiring and initial establishment of employment agreements, including the terms for such items as pay, pensions and severance arrangements. It is important in establishing compensation arrangements that compensation be consistent with, and based on the long-term economic performance of, the business's long-term shareholders returns.

Compensation committees are also responsible for the oversight of the transparency of compensation. This oversight includes disclosure of compensation arrangements, the matrix used in assessing pay for performance, and the use of compensation consultants. In order to ensure the independence of the board's compensation consultant, we believe the compensation committee should only engage a compensation consultant that is not also providing any services to the company or management apart from their contract with the compensation committee. It is important to investors that they have clear and complete disclosure of all the significant terms of compensation arrangements in order to make informed decisions with respect to the oversight and decisions of the compensation committee.

Finally, compensation committees are responsible for oversight of internal controls over the executive compensation process. This includes controls over gathering information used to determine compensation, establishment of equity award plans, and granting of equity awards. For example, the use of a compensation consultant who maintains a business relationship with company management may cause the committee to make decisions based on information that is compromised by the consultant's conflict of interests. Lax controls can also contribute to improper awards of compensation such as through granting of backdated or spring-loaded options, or granting of bonuses when triggers for bonus payments have not been met.

Central to understanding the actions of a compensation committee is a careful review of the Compensation Discussion and Analysis ("CD&A") report included in each company's proxy. We review the CD&A in our evaluation of the overall compensation practices of a company, as overseen by the compensation committee.

²⁰ The Council of Institutional Investors. "Corporate Governance Policies," p. 4, April 5, 2006; and "Letter from Council of Institutional Investors to the AICPA," November 8, 2006.

The CD&A is also integral to the evaluation of compensation proposals at companies, such as advisory votes on executive compensation, which allow shareholders to vote on the compensation paid to a company's top executives.

When assessing the performance of compensation committees, we will consider recommending that shareholders vote against the following:²¹

1. All members of a compensation committee during whose tenure the committee failed to address shareholder concerns following majority shareholder rejection of the say-on-pay proposal in the previous year. Where the proposal was approved but there was a significant shareholder vote (i.e., greater than 25% of votes cast) against the say-on-pay proposal in the prior year, if the board did not respond sufficiently to the vote including actively engaging shareholders on this issue, we will also consider recommending voting against the chair of the compensation committee or all members of the compensation committee, depending on the severity and history of the compensation problems and the level of shareholder opposition.
2. All members of the compensation committee who are up for election and served when the company failed to align pay with performance if shareholders are not provided with an advisory vote on executive compensation at the annual meeting.²²
3. Any member of the compensation committee who has served on the compensation committee of at least two other public companies that have consistently failed to align pay with performance and whose oversight of compensation at the company in question is suspect.
4. All members of the compensation committee (during the relevant time period) if the company entered into excessive employment agreements and/or severance agreements.
5. All members of the compensation committee when performance goals were changed (i.e., lowered) when employees failed or were unlikely to meet original goals, or performance-based compensation was paid despite goals not being attained.
6. All members of the compensation committee if excessive employee perquisites and benefits were allowed.
7. The compensation committee chair if the compensation committee did not meet during the year.
8. All members of the compensation committee when the company repriced options or completed a "self tender offer" without shareholder approval within the past two years.
9. All members of the compensation committee when vesting of in-the-money options is accelerated.
10. All members of the compensation committee when option exercise prices were backdated. Glass Lewis will recommend voting against an executive director who played a role in and participated in option backdating.
11. All members of the compensation committee when option exercise prices were spring-loaded or otherwise timed around the release of material information.

²¹ As discussed under the section labeled "Committee Chair," where the recommendation is to vote against the committee chair and the chair is not up for election because the board is staggered, we do not recommend voting against any members of the committee who are up for election; rather, we will note the concern with regard to the committee chair.

²² If a company provides shareholders with a say-on-pay proposal, we will initially only recommend voting against the company's say-on-pay proposal and will not recommend voting against the members of the compensation committee unless there is a pattern of failing to align pay and performance and/or the company exhibits egregious compensation practices. However, if the company repeatedly fails to align pay and performance, we will then recommend against the members of the compensation committee in addition to recommending voting against the say-on-pay proposal. For cases in which the disconnect between pay and performance is marginal and the company has outperformed its peers, we will consider not recommending against compensation committee members.

12. All members of the compensation committee when a new employment contract is given to an executive that does not include a clawback provision and the company had a material restatement, especially if the restatement was due to fraud.
13. The chair of the compensation committee where the CD&A provides insufficient or unclear information about performance metrics and goals, where the CD&A indicates that pay is not tied to performance, or where the compensation committee or management has excessive discretion to alter performance terms or increase amounts of awards in contravention of previously defined targets.
14. All members of the compensation committee during whose tenure the committee failed to implement a shareholder proposal regarding a compensation-related issue, where the proposal received the affirmative vote of a majority of the voting shares at a shareholder meeting, and when a reasonable analysis suggests that the compensation committee (rather than the governance committee) should have taken steps to implement the request.²³

NOMINATING AND GOVERNANCE COMMITTEE PERFORMANCE

The nominating and governance committee, as an agent for the shareholders, is responsible for the governance by the board of the company and its executives. In performing this role, the committee is responsible and accountable for selection of objective and competent board members. It is also responsible for providing leadership on governance policies adopted by the company, such as decisions to implement shareholder proposals that have received a majority vote. (At most companies, a single committee is charged with these oversight functions; at others, the governance and nominating responsibilities are apportioned among two separate committees.)

Consistent with Glass Lewis' philosophy that boards should have diverse backgrounds and members with a breadth and depth of relevant experience, we believe that nominating and governance committees should consider diversity when making director nominations within the context of each specific company and its industry. In our view, shareholders are best served when boards make an effort to ensure a constituency that is not only reasonably diverse on the basis of age, race, gender and ethnicity, but also on the basis of geographic knowledge, industry experience, board tenure and culture.

Regarding the committee responsible for governance, we will consider recommending that shareholders vote against the following:²⁴

1. All members of the governance committee²⁵ during whose tenure a shareholder proposal relating to important shareholder rights received support from a majority of the votes cast (excluding abstentions and broker non-votes) and the board has not begun to implement or enact the proposal's subject matter.²⁶ Examples of such shareholder proposals include those seeking a declassified board structure, a majority vote standard for director elections, or a right to call a special meeting. In determining whether a board has sufficiently implemented such a proposal, we will examine the quality of the right enacted or proffered by the board for any conditions that may unreasonably interfere with the shareholders' ability to exercise the right (e.g., overly restrictive procedural requirements for calling a special meeting).

²³ In all other instances (i.e., a non-compensation-related shareholder proposal should have been implemented) we recommend that shareholders vote against the members of the governance committee.

²⁴ As discussed in the guidelines section labeled "Committee Chair," where we would recommend to vote against the committee chair but the chair is not up for election because the board is staggered, we do not recommend voting against any members of the committee who are up for election; rather, we will note the concern with regard to the committee chair.

²⁵ If the board does not have a committee responsible for governance oversight and the board did not implement a shareholder proposal that received the requisite support, we will recommend voting against the entire board. If the shareholder proposal at issue requested that the board adopt a declassified structure, we will recommend voting against all director nominees up for election.

²⁶ Where a compensation-related shareholder proposal should have been implemented, and when a reasonable analysis suggests that the members of the compensation committee (rather than the governance committee) bear the responsibility for failing to implement the request, we recommend that shareholders only vote against members of the compensation committee.

2. The governance committee chair,²⁷ when the chair is not independent and an independent lead or presiding director has not been appointed.²⁸
3. In the absence of a nominating committee, the governance committee chair when there are less than five or the whole nominating committee when there are more than 20 members on the board.
4. The governance committee chair, when the committee fails to meet at all during the year.
5. The governance committee chair, when for two consecutive years the company provides what we consider to be “inadequate” related party transaction disclosure (i.e., the nature of such transactions and/or the monetary amounts involved are unclear or excessively vague, thereby preventing a shareholder from being able to reasonably interpret the independence status of multiple directors above and beyond what the company maintains is compliant with SEC or applicable stock exchange listing requirements).
6. The governance committee chair, when during the past year the board adopted a forum selection clause (i.e., an exclusive forum provision)²⁹ without shareholder approval, or, if the board is currently seeking shareholder approval of a forum selection clause pursuant to a bundled bylaw amendment rather than as a separate proposal.
7. All members of the governance committee during whose tenure the board adopted, without shareholder approval, provisions in its charter or bylaws that, through rules on director compensation, may inhibit the ability of shareholders to nominate directors.

In addition, we may recommend that shareholders vote against the chair of the governance committee, or the entire committee, where the board has amended the company’s governing documents to reduce or remove important shareholder rights, or to otherwise impede the ability of shareholders to exercise such right, and has done so without seeking shareholder approval. Examples of board actions that may cause such a recommendation include: the elimination of the ability of shareholders to call a special meeting or to act by written consent; an increase to the ownership threshold required for shareholders to call a special meeting; an increase to vote requirements for charter or bylaw amendments; the adoption of provisions that limit the ability of shareholders to pursue full legal recourse—such as bylaws that require arbitration of shareholder claims or that require shareholder plaintiffs to pay the company’s legal expenses in the absence of a court victory (i.e., “fee-shifting” or “loser pays” bylaws); the adoption of a classified board structure; and the elimination of the ability of shareholders to remove a director without cause.

Regarding the nominating committee, we will consider recommending that shareholders vote against the following:³⁰

1. All members of the nominating committee, when the committee nominated or renominated an individual who had a significant conflict of interest or whose past actions demonstrated a lack of integrity or inability to represent shareholder interests.
2. The nominating committee chair, if the nominating committee did not meet during the year.

²⁷ As discussed in the guidelines section labeled “Committee Chair,” if the committee chair is not specified, we recommend voting against the director who has been on the committee the longest. If the longest-serving committee member cannot be determined, we will recommend voting against the longest-serving board member serving on the committee.

²⁸ We believe that one independent individual should be appointed to serve as the lead or presiding director. When such a position is rotated among directors from meeting to meeting, we will recommend voting against the governance committee chair as we believe the lack of fixed lead or presiding director means that, effectively, the board does not have an independent board leader.

²⁹ A forum selection clause is a bylaw provision stipulating that a certain state, typically where the company is incorporated, which is most often Delaware, shall be the exclusive forum for all intra-corporate disputes (e.g., shareholder derivative actions, assertions of claims of a breach of fiduciary duty, etc.). Such a clause effectively limits a shareholder’s legal remedy regarding appropriate choice of venue and related relief offered under that state’s laws and rulings.

³⁰ As discussed in the guidelines section labeled “Committee Chair,” where we would recommend to vote against the committee chair but the chair is not up for election because the board is staggered, we do not recommend voting against any members of the committee who are up for election; rather, we will note the concern with regard to the committee chair.

3. In the absence of a governance committee, the nominating committee chair³¹ when the chair is not independent, and an independent lead or presiding director has not been appointed.³²
4. The nominating committee chair, when there are less than five or the whole nominating committee when there are more than 20 members on the board.³³
5. The nominating committee chair, when a director received a greater than 50% against vote the prior year and not only was the director not removed, but the issues that raised shareholder concern were not corrected.³⁴

In addition, we may consider recommending shareholders vote against the chair of the nominating committee where the board's failure to ensure the board has directors with relevant experience, either through periodic director assessment or board refreshment, has contributed to a company's poor performance.

BOARD-LEVEL RISK MANAGEMENT OVERSIGHT

Glass Lewis evaluates the risk management function of a public company board on a strictly case-by-case basis. Sound risk management, while necessary at all companies, is particularly important at financial firms which inherently maintain significant exposure to financial risk. We believe such financial firms should have a chief risk officer reporting directly to the board and a dedicated risk committee or a committee of the board charged with risk oversight. Moreover, many non-financial firms maintain strategies which involve a high level of exposure to financial risk. Similarly, since many non-financial firms have complex hedging or trading strategies, those firms should also have a chief risk officer and a risk committee.

Our views on risk oversight are consistent with those expressed by various regulatory bodies. In its December 2009 Final Rule release on Proxy Disclosure Enhancements, the SEC noted that risk oversight is a key competence of the board and that additional disclosures would improve investor and shareholder understanding of the role of the board in the organization's risk management practices. The final rules, which became effective on February 28, 2010, now explicitly require companies and mutual funds to describe (while allowing for some degree of flexibility) the board's role in the oversight of risk.

When analyzing the risk management practices of public companies, we take note of any significant losses or writedowns on financial assets and/or structured transactions. In cases where a company has disclosed a sizable loss or writedown, and where we find that the company's board-level risk committee's poor oversight contributed to the loss, we will recommend that shareholders vote against such committee members on that basis. In addition, in cases where a company maintains a significant level of financial risk exposure but fails to disclose any explicit form of board-level risk oversight (committee or otherwise)³⁵, we will consider recommending to vote against the board chair on that basis. However, we generally would not recommend voting against a combined chair/CEO, except in egregious cases.

ENVIRONMENTAL AND SOCIAL RISK OVERSIGHT

Companies face significant financial, legal and reputational risks resulting from poor environmental and social practices, or negligent oversight thereof. Therefore, Glass Lewis views the identification, mitigation

³¹ As discussed under the section labeled "Committee Chair," if the committee chair is not specified, we will recommend voting against the director who has been on the committee the longest. If the longest-serving committee member cannot be determined, we will recommend voting against the longest-serving board member on the committee.

³² In the absence of both a governance and a nominating committee, we will recommend voting against the board chair on this basis, unless if the chair also serves as the CEO, in which case we will recommend voting against the longest-serving director.

³³ In the absence of both a governance and a nominating committee, we will recommend voting against the board chair on this basis, unless if the chair also serves as the CEO, in which case we will recommend voting against the the longest-serving director.

³⁴ Considering that shareholder discontent clearly relates to the director who received a greater than 50% against vote rather than the nominating chair, we review the severity of the issue(s) that initially raised shareholder concern as well as company responsiveness to such matters, and will only recommend voting against the nominating chair if a reasonable analysis suggests that it would be most appropriate. In rare cases, we will consider recommending against the nominating chair when a director receives a substantial (i.e., 25% or more) vote against based on the same analysis.

³⁵ A committee responsible for risk management could be a dedicated risk committee, the audit committee, or the finance committee, depending on a given company's board structure and method of disclosure. At some companies, the entire board is charged with risk management.

and management of environmental and social risks as integral components when evaluating a company's overall risk exposure. We believe boards should ensure that management conducts a complete risk analysis of company operations, including those that have environmental and social implications. Directors should monitor management's performance in managing and mitigating these environmental and social risks in order to eliminate or minimize the risks to the company and its shareholders. In cases where the board or management has failed to sufficiently identify and manage a material environmental or social risk that did or could negatively impact shareholder value, we will recommend shareholders vote against directors responsible for risk oversight in consideration of the nature of the risk and the potential effect on shareholder value.

DIRECTOR COMMITMENTS

We believe that directors should have the necessary time to fulfill their duties to shareholders. In our view, an overcommitted director can pose a material risk to a company's shareholders, particularly during periods of crisis. In addition, recent research indicates that the time commitment associated with being a director has been on a significant upward trend in the past decade.³⁶ As a result, we generally recommend that shareholders vote against a director who serves as an executive officer of any public company while serving on more than two public company boards and any other director who serves on more than five public company boards.

Because we believe that executives will primarily devote their attention to executive duties, we generally will not recommend that shareholders vote against overcommitted directors at the companies where they serve as an executive.

When determining whether a director's service on an excessive number of boards may limit the ability of the director to devote sufficient time to board duties, we may consider relevant factors such as the size and location of the other companies where the director serves on the board, the director's board roles at the companies in question, whether the director serves on the board of any large privately-held companies, the director's tenure on the boards in question, and the director's attendance record at all companies.

We may also refrain from recommending against certain directors if the company provides sufficient rationale for their continued board service. The rationale should allow shareholders to evaluate the scope of the directors' other commitments, as well as their contributions to the board including specialized knowledge of the company's industry, strategy or key markets, the diversity of skills, perspective and background they provide, and other relevant factors. We will also generally refrain from recommending to vote against a director who serves on an excessive number of boards within a consolidated group of companies or a director that represents a firm whose sole purpose is to manage a portfolio of investments which include the company.

OTHER CONSIDERATIONS

In addition to the three key characteristics - independence, performance, experience - that we use to evaluate board members, we consider conflict-of-interest issues as well as the size of the board of directors when making voting recommendations.

Conflicts of Interest

We believe board members should be wholly free of identifiable and substantial conflicts of interest, regardless of the overall level of independent directors on the board. Accordingly, we recommend that shareholders vote against the following types of directors:

1. A CFO who is on the board: In our view, the CFO holds a unique position relative to financial reporting and disclosure to shareholders. Due to the critical importance of financial disclosure and reporting, we believe the CFO should report to the board and not be a member of it.

³⁶ For example, the 2015-2016 NACD Public Company Governance Survey states that, on average, directors spent a total of 248.2 hours annual on board-related matters during the past year, which it describes as a "historically high level" that is significantly above the average hours recorded in 2006. Additionally, the 2015 Spencer Stuart Board Index indicates that the average number of outside board seats held by CEOs of S&P 500 companies is 0.6, down from 0.7 in 2009 and 0.9 in 2004.

2. A director who provides — or a director who has an immediate family member who provides — material consulting or other material professional services to the company. These services may include legal, consulting, or financial services. We question the need for the company to have consulting relationships with its directors. We view such relationships as creating conflicts for directors, since they may be forced to weigh their own interests against shareholder interests when making board decisions. In addition, a company’s decisions regarding where to turn for the best professional services may be compromised when doing business with the professional services firm of one of the company’s directors.
3. A director, or a director who has an immediate family member, engaging in airplane, real estate, or similar deals, including perquisite-type grants from the company, amounting to more than \$50,000. Directors who receive these sorts of payments from the company will have to make unnecessarily complicated decisions that may pit their interests against shareholder interests.
4. Interlocking directorships: CEOs or other top executives who serve on each other’s boards create an interlock that poses conflicts that should be avoided to ensure the promotion of shareholder interests above all else.³⁷
5. All board members who served at a time when a poison pill with a term of longer than one year was adopted without shareholder approval within the prior twelve months.³⁸ In the event a board is classified and shareholders are therefore unable to vote against all directors, we will recommend voting against the remaining directors the next year they are up for a shareholder vote. If a poison pill with a term of one year or less was adopted without shareholder approval, and without adequate justification, we will consider recommending that shareholders vote against all members of the governance committee. If the board has, without seeking shareholder approval, and without adequate justification, extended the term of a poison pill by one year or less in two consecutive years, we will consider recommending that shareholders vote against the entire board.

Size of the Board of Directors

While we do not believe there is a universally applicable optimum board size, we do believe boards should have at least five directors to ensure sufficient diversity in decision-making and to enable the formation of key board committees with independent directors. Conversely, we believe that boards with more than 20 members will typically suffer under the weight of “too many cooks in the kitchen” and have difficulty reaching consensus and making timely decisions. Sometimes the presence of too many voices can make it difficult to draw on the wisdom and experience in the room by virtue of the need to limit the discussion so that each voice may be heard.

To that end, we typically recommend voting against the nominating committee chair (or the governance committee, in the absence of a nominating committee) at a board with fewer than five directors or more than 20 directors.³⁹

CONTROLLED COMPANIES

We believe controlled companies warrant certain exceptions to our independence standards. The board’s function is to protect shareholder interests; however, when an individual, entity (or group of shareholders party to a formal agreement) owns more than 50% of the voting shares, the interests of the majority of shareholders are the interests of that entity or individual. Consequently, Glass Lewis does not apply our usual two-thirds board independence rule and therefore we will not recommend voting against boards whose composition reflects the makeup of the shareholder population.

³⁷ We do not apply a look-back period for this situation. The interlock policy applies to both public and private companies. We will also evaluate multiple board interlocks among non-insiders (i.e., multiple directors serving on the same boards at other companies), for evidence of a pattern of poor oversight.

³⁸ Refer to Section V. Governance Structure and the Shareholder Franchise for further discussion of our policies regarding anti-takeover measures, including poison pills.

³⁹ The Conference Board, at p. 23 in its May 2003 report “Corporate Governance Best Practices, Id.,” quotes one of its roundtable participants as stating, “[w]hen you’ve got a 20 or 30 person corporate board, it’s one way of assuring that nothing is ever going to happen that the CEO doesn’t want to happen.”

Independence Exceptions

The independence exceptions that we make for controlled companies are as follows:

1. We do not require that controlled companies have boards that are at least two-thirds independent. So long as the insiders and/or affiliates are connected with the controlling entity, we accept the presence of non-independent board members.
2. The compensation committee and nominating and governance committees do not need to consist solely of independent directors.
 - We believe that standing nominating and corporate governance committees at controlled companies are unnecessary. Although having a committee charged with the duties of searching for, selecting, and nominating independent directors can be beneficial, the unique composition of a controlled company's shareholder base makes such committees weak and irrelevant.
 - Likewise, we believe that independent compensation committees at controlled companies are unnecessary. Although independent directors are the best choice for approving and monitoring senior executives' pay, controlled companies serve a unique shareholder population whose voting power ensures the protection of its interests. As such, we believe that having affiliated directors on a controlled company's compensation committee is acceptable. However, given that a controlled company has certain obligations to minority shareholders we feel that an insider should not serve on the compensation committee. Therefore, Glass Lewis will recommend voting against any insider (the CEO or otherwise) serving on the compensation committee.
3. Controlled companies do not need an independent chair or an independent lead or presiding director. Although an independent director in a position of authority on the board – such as chair or presiding director — can best carry out the board's duties, controlled companies serve a unique shareholder population whose voting power ensures the protection of its interests.

Size of the Board of Directors

We have no board size requirements for controlled companies.

Audit Committee Independence

Despite a controlled company's status, unlike for the other key committees, we nevertheless believe that audit committees should consist solely of independent directors. Regardless of a company's controlled status, the interests of all shareholders must be protected by ensuring the integrity and accuracy of the company's financial statements. Allowing affiliated directors to oversee the preparation of financial reports could create an insurmountable conflict of interest.

SIGNIFICANT SHAREHOLDERS

Where an individual or entity holds between 20-50% of a company's voting power, we believe it is reasonable to allow proportional representation on the board and committees (excluding the audit committee) based on the individual or entity's percentage of ownership.

GOVERNANCE FOLLOWING AN IPO OR SPIN-OFF

We believe companies that have recently completed an initial public offering ("IPO") or spin-off should be allowed adequate time to fully comply with marketplace listing requirements and meet basic corporate governance standards. Generally speaking, Glass Lewis refrains from making recommendations on the basis of governance standards (e.g., board independence, committee membership and structure, meeting attendance, etc.) during the one-year period following an IPO.

However, some cases warrant shareholder action against the board of a company that have completed an IPO or spin-off within the past year. When evaluating companies that have recently gone public, Glass Lewis will review the terms of the applicable governing documents in order to determine whether shareholder rights are being severely restricted indefinitely. We believe boards that approve highly restrictive governing documents have demonstrated that they may subvert shareholder interests following the IPO. In conducting this evaluation, Glass Lewis will consider:

1. The adoption of anti-takeover provisions such as a poison pill or classified board
2. Supermajority vote requirements to amend governing documents
3. The presence of exclusive forum or fee-shifting provisions
4. Whether shareholders can call special meetings or act by written consent
5. The voting standard provided for the election of directors
6. The ability of shareholders to remove directors without cause
7. The presence of evergreen provisions in the Company's equity compensation arrangements

In cases where a board adopts an anti-takeover provision preceding an IPO, we will consider recommending to vote against the members of the board who served when it was adopted if the board: (i) did not also commit to submit the anti-takeover provision to a shareholder vote at the company's first shareholder meeting following the IPO; or (ii) did not provide a sound rationale or sunset provision for adopting the anti-takeover provision in question.

In our view, adopting an anti-takeover device unfairly penalizes future shareholders who (except for electing to buy or sell the stock) are unable to weigh in on a matter that could potentially negatively impact their ownership interest. This notion is strengthened when a board adopts a classified board with an infinite duration or a poison pill with a five- to ten-year term immediately prior to going public, thereby insulated management for a substantial amount of time.

In addition, shareholders should be wary of companies that adopt supermajority voting requirements before their IPO. Absent explicit provisions in the articles or bylaws stipulating that certain policies will be phased out over a certain period of time, long-term shareholders could find themselves in the predicament of having to attain a supermajority vote to approve future proposals seeking to eliminate such policies.

DUAL-LISTED OR FOREIGN-INCORPORATED COMPANIES

For companies that trade on multiple exchanges or are incorporated in foreign jurisdictions but trade only in the U.S., we will apply the governance standard most relevant in each situation. We will consider a number of factors in determining which Glass Lewis country-specific policy to apply, including but not limited to: (i) the corporate governance structure and features of the company including whether the board structure is unique to a particular market; (ii) the nature of the proposals; (iii) the location of the company's primary listing, if one can be determined; (iv) the regulatory/governance regime that the board is reporting against; and (v) the availability and completeness of the company's SEC filings.

MUTUAL FUND BOARDS

Mutual funds, or investment companies, are structured differently from regular public companies (i.e., operating companies). Typically, members of a fund's adviser are on the board and management takes on a different role from that of regular public companies. Thus, we focus on a short list of requirements, although many of our guidelines remain the same.

The following mutual fund policies are similar to the policies for regular public companies:

1. **Size of the board of directors** — The board should be made up of between five and twenty directors.
2. **The CFO on the board** — Neither the CFO of the fund nor the CFO of the fund's registered investment adviser should serve on the board.
3. **Independence of the audit committee** — The audit committee should consist solely of independent directors.
4. **Audit committee financial expert** — At least one member of the audit committee should be designated as the audit committee financial expert.

The following differences from regular public companies apply at mutual funds:

1. **Independence of the board** — We believe that three-fourths of an investment company's board should be made up of independent directors. This is consistent with a proposed SEC rule on investment company boards. The Investment Company Act requires 40% of the board to be independent, but in 2001, the SEC amended the Exemptive Rules to require that a majority of a mutual fund board be independent. In 2005, the SEC proposed increasing the independence threshold to 75%. In 2006, a federal appeals court ordered that this rule amendment be put back out for public comment, putting it back into "proposed rule" status. Since mutual fund boards play a vital role in overseeing the relationship between the fund and its investment manager, there is greater need for independent oversight than there is for an operating company board.
2. **When the auditor is not up for ratification** — We do not recommend voting against the audit committee if the auditor is not up for ratification. Due to the different legal structure of an investment company compared to an operating company, the auditor for the investment company (i.e., mutual fund) does not conduct the same level of financial review for each investment company as for an operating company.
3. **Non-independent chair** — The SEC has proposed that the chair of the fund board be independent. We agree that the roles of a mutual fund's chair and CEO should be separate. Although we believe this would be best at all companies, we recommend voting against the chair of an investment company's nominating committee as well as the board chair if the chair and CEO of a mutual fund are the same person and the fund does not have an independent lead or presiding director. Seven former SEC commissioners support the appointment of an independent chair and we agree with them that "an independent board chair would be better able to create conditions favoring the long-term interests of fund shareholders than would a chair who is an executive of the adviser." (See the comment letter sent to the SEC in support of the proposed rule at <http://www.sec.gov/news/studies/indchair.pdf>)
4. **Multiple funds overseen by the same director** — Unlike service on a public company board, mutual fund boards require much less of a time commitment. Mutual fund directors typically serve on dozens of other mutual fund boards, often within the same fund complex. The Investment Company Institute's ("ICI") Overview of Fund Governance Practices, 1994-2012, indicates that the average number of funds served by an independent director in 2012 was 53. Absent evidence that a specific director is hindered from being an effective board member at a fund due to service on other funds' boards, we refrain from maintaining a cap on the number of outside mutual fund boards that we believe a director can serve on.

DECLASSIFIED BOARDS

Glass Lewis favors the repeal of staggered boards and the annual election of directors. We believe staggered boards are less accountable to shareholders than boards that are elected annually. Furthermore, we feel the annual election of directors encourages board members to focus on shareholder interests.

Empirical studies have shown: (i) staggered boards are associated with a reduction in a firm's valuation; and (ii) in the context of hostile takeovers, staggered boards operate as a takeover defense, which entrenches management, discourages potential acquirers, and delivers a lower return to target shareholders.

In our view, there is no evidence to demonstrate that staggered boards improve shareholder returns in a takeover context. Some research has indicated that shareholders are worse off when a staggered board blocks a transaction; further, when a staggered board negotiates a friendly transaction, no statistically significant difference in premium occurs.⁴⁰ Additional research found that charter-based staggered boards “reduce the market value of a firm by 4% to 6% of its market capitalization” and that “staggered boards bring about and not merely reflect this reduction in market value.”⁴¹ A subsequent study reaffirmed that classified boards reduce shareholder value, finding “that the ongoing process of dismantling staggered boards, encouraged by institutional investors, could well contribute to increasing shareholder wealth.”⁴²

Shareholders have increasingly come to agree with this view. In 2013, 91% of S&P 500 companies had declassified boards, up from approximately 40% a decade ago.⁴³ Management proposals to declassify boards are approved with near unanimity and shareholder proposals on the topic also receive strong shareholder support; in 2014, shareholder proposals requesting that companies declassify their boards received average support of 84% (excluding abstentions and broker non-votes), whereas in 1987, only 16.4% of votes cast favored board declassification.⁴⁴ Further, a growing number of companies, nearly half of all those targeted by shareholder proposals requesting that all directors stand for election annually, either recommended shareholders support the proposal or made no recommendation, a departure from the more traditional management recommendation to vote against shareholder proposals.

Given our belief that declassified boards promote director accountability, the empirical evidence suggesting staggered boards reduce a company's value and the established shareholder opposition to such a structure, Glass Lewis supports the declassification of boards and the annual election of directors.

BOARD EVALUATION AND REFRESHMENT

Glass Lewis strongly supports routine director evaluation, including independent external reviews, and periodic board refreshment to foster the sharing of diverse perspectives in the boardroom and the generation of new ideas and business strategies. Further, we believe the board should evaluate the need for changes to board composition based on an analysis of skills and experience necessary for the company, as well as the results of the director evaluations, as opposed to relying solely on age or tenure limits. When necessary, shareholders can address concerns regarding proper board composition through director elections.

In our view, a director's experience can be a valuable asset to shareholders because of the complex, critical issues that boards face. This said, we recognize that in rare circumstances, a lack of refreshment can contribute to a lack of board responsiveness to poor company performance.

On occasion, age or term limits can be used as a means to remove a director for boards that are unwilling to police their membership and enforce turnover. Some shareholders support term limits as a way to force change in such circumstances.

While we understand that age limits can aid board succession planning, the long-term impact of age limits restricts experienced and potentially valuable board members from service through an arbitrary means. We believe that shareholders are better off monitoring the board's overall composition, including its diversity of skill sets, the alignment of the board's areas of expertise with a company's strategy, the board's approach to corporate governance, and its stewardship of company performance, rather than imposing inflexible rules that don't necessarily correlate with returns or benefits for shareholders.

40 Lucian Bebchuk, John Coates IV, Guhan Subramanian, “The Powerful Antitakeover Force of Staggered Boards: Further Findings and a Reply to Symposium Participants,” 55 *Stanford Law Review* 885-917 (2002).

41 Lucian Bebchuk, Alma Cohen, “The Costs of Entrenched Boards” (2004).

42 Lucian Bebchuk, Alma Cohen and Charles C.Y. Wang, “Staggered Boards and the Wealth of Shareholders: Evidence from a Natural Experiment,” SSRN: <http://ssrn.com/abstract=1706806> (2010), p. 26.

43 Spencer Stuart Board Index, 2013, p. 4

44 Lucian Bebchuk, John Coates IV and Guhan Subramanian, “The Powerful Antitakeover Force of Staggered Boards: Theory, Evidence, and Policy”.

However, if a board adopts term/age limits, it should follow through and not waive such limits. If the board waives its term/age limits, Glass Lewis will consider recommending shareholders vote against the nominating and/or governance committees, unless the rule was waived with sufficient explanation, such as consummation of a corporate transaction like a merger.

PROXY ACCESS

In lieu of running their own contested election, proxy access would not only allow certain shareholders to nominate directors to company boards but the shareholder nominees would be included on the company's ballot, significantly enhancing the ability of shareholders to play a meaningful role in selecting their representatives. Glass Lewis generally supports affording shareholders the right to nominate director candidates to management's proxy as a means to ensure that significant, long-term shareholders have an ability to nominate candidates to the board.

Companies generally seek shareholder approval to amend company bylaws to adopt proxy access in response to shareholder engagement or pressure, usually in the form of a shareholder proposal requesting proxy access, although some companies may adopt some elements of proxy access without prompting. Glass Lewis considers several factors when evaluating whether to support proposals for companies to adopt proxy access including the specified minimum ownership and holding requirement for shareholders to nominate one or more directors, as well as company size, performance and responsiveness to shareholders.

For a discussion of recent regulatory events in this area, along with a detailed overview of the Glass Lewis approach to Shareholder Proposals regarding Proxy Access, refer to Glass Lewis' *Proxy Paper Guidelines for Shareholder Initiatives*, available at www.glasslewis.com.

MAJORITY VOTE FOR THE ELECTION OF DIRECTORS

Majority voting for the election of directors is fast becoming the de facto standard in corporate board elections. In our view, the majority voting proposals are an effort to make the case for shareholder impact on director elections on a company-specific basis.

While this proposal would not give shareholders the opportunity to nominate directors or lead to elections where shareholders have a choice among director candidates, if implemented, the proposal would allow shareholders to have a voice in determining whether the nominees proposed by the board should actually serve as the overseer-representatives of shareholders in the boardroom. We believe this would be a favorable outcome for shareholders.

The number of shareholder proposals requesting that companies adopt a majority voting standard has declined significantly during the past decade, largely as a result of widespread adoption of majority voting or director resignation policies at U.S. companies. In 2015, 86% of the S&P 500 Index had implemented a resignation policy for directors failing to receive majority shareholder support, compared to 71% in 2010.⁴⁵

THE PLURALITY VOTE STANDARD

Today, most US companies still elect directors by a plurality vote standard. Under that standard, if one shareholder holding only one share votes in favor of a nominee (including that director, if the director is a shareholder), that nominee "wins" the election and assumes a seat on the board. The common concern among companies with a plurality voting standard is the possibility that one or more directors would not receive a majority of votes, resulting in "failed elections."

ADVANTAGES OF A MAJORITY VOTE STANDARD

If a majority vote standard were implemented, a nominee would have to receive the support of a majority of the shares voted in order to be elected. Thus, shareholders could collectively vote to reject a director they

⁴⁵ Spencer Stuart Board Index, 2015, p. 12.

believe will not pursue their best interests. Given that so few directors (less than 100 a year) do not receive majority support from shareholders, we think that a majority vote standard is reasonable since it will neither result in many failed director elections nor reduce the willingness of qualified, shareholder-focused directors to serve in the future. Further, most directors who fail to receive a majority shareholder vote in favor of their election do not step down, underscoring the need for true majority voting.

We believe that a majority vote standard will likely lead to more attentive directors. Although shareholders only rarely fail to support directors, the occasional majority vote against a director's election will likely deter the election of directors with a record of ignoring shareholder interests. Glass Lewis will therefore generally support proposals calling for the election of directors by a majority vote, excepting contested director elections.

In response to the high level of support majority voting has garnered, many companies have voluntarily taken steps to implement majority voting or modified approaches to majority voting. These steps range from a modified approach requiring directors that receive a majority of withheld votes to resign (i.e., a resignation policy) to actually requiring a majority vote of outstanding shares to elect directors.

We feel that the modified approach does not go far enough because requiring a director to resign is not the same as requiring a majority vote to elect a director and does not allow shareholders a definitive voice in the election process. Further, under the modified approach, the corporate governance committee could reject a resignation and, even if it accepts the resignation, the corporate governance committee decides on the director's replacement. And since the modified approach is usually adopted as a policy by the board or a board committee, it could be altered by the same board or committee at any time.

CONFLICTING PROPOSALS

On January 16, 2015, the SEC announced that for the 2015 proxy season it would not opine on the application of Rule 14a-8(i)(9) that allows companies to exclude shareholder proposals, including those seeking proxy access, that conflict with a management proposal on the same issue. While the announcement did not render the rule ineffective, a number of companies opted not to exclude a shareholder proposal but rather to allow shareholders a vote on both management and shareholder proposals on the same issue, generally proxy access. The management proposals typically imposed more restrictive terms than the shareholder proposal in order to exercise the particular shareholder right at issue, e.g., a higher proxy access ownership threshold. On October 22, 2015, the SEC issued Staff Legal Bulletin No. 14H ("SLB 14H") clarifying its rule concerning the exclusion of certain shareholder proposals when similar items are also on the ballot. SLB 14H increases the burden on companies to prove to SEC staff that a conflict exists; therefore, some companies may still choose to place management proposals alongside similar shareholder proposals in the coming year.

When Glass Lewis reviews conflicting management and shareholder proposals, we will consider the following:

- The nature of the underlying issue;
- The benefit to shareholders from implementation of the proposal;
- The materiality of the differences between the terms of the shareholder proposal and management proposal;
- The appropriateness of the provisions in the context of a company's shareholder base, corporate structure and other relevant circumstances; and
- A company's overall governance profile and, specifically, its responsiveness to shareholders as evidenced by a company's response to previous shareholder proposals and its adoption of progressive shareholder rights provisions.

II. Transparency and Integrity in Financial Reporting

AUDITOR RATIFICATION

The auditor's role as gatekeeper is crucial in ensuring the integrity and transparency of the financial information necessary for protecting shareholder value. Shareholders rely on the auditor to ask tough questions and to do a thorough analysis of a company's books to ensure that the information provided to shareholders is complete, accurate, fair, and that it is a reasonable representation of a company's financial position. The only way shareholders can make rational investment decisions is if the market is equipped with accurate information about a company's fiscal health. As stated in the October 6, 2008 Final Report of the Advisory Committee on the Auditing Profession to the U.S. Department of the Treasury:

"The auditor is expected to offer critical and objective judgment on the financial matters under consideration, and actual and perceived absence of conflicts is critical to that expectation. The Committee believes that auditors, investors, public companies, and other market participants must understand the independence requirements and their objectives, and that auditors must adopt a mindset of skepticism when facing situations that may compromise their independence."

As such, shareholders should demand an objective, competent and diligent auditor who performs at or above professional standards at every company in which the investors hold an interest. Like directors, auditors should be free from conflicts of interest and should avoid situations requiring a choice between the auditor's interests and the public's interests. Almost without exception, shareholders should be able to annually review an auditor's performance and to annually ratify a board's auditor selection. Moreover, in October 2008, the Advisory Committee on the Auditing Profession went even further, and recommended that "to further enhance audit committee oversight and auditor accountability ... disclosure in the company proxy statement regarding shareholder ratification [should] include the name(s) of the senior auditing partner(s) staffed on the engagement."⁴⁶

On August 16, 2011, the PCAOB issued a Concept Release seeking public comment on ways that auditor independence, objectivity and professional skepticism could be enhanced, with a specific emphasis on mandatory audit firm rotation. The PCAOB convened several public roundtable meetings during 2012 to further discuss such matters. Glass Lewis believes auditor rotation can ensure both the independence of the auditor and the integrity of the audit; we will typically recommend supporting proposals to require auditor rotation when the proposal uses a reasonable period of time (usually not less than 5-7 years), particularly at companies with a history of accounting problems.

VOTING RECOMMENDATIONS ON AUDITOR RATIFICATION

We generally support management's choice of auditor except when we believe the auditor's independence or audit integrity has been compromised. Where a board has not allowed shareholders to review and ratify an auditor, we typically recommend voting against the audit committee chair. When there have been material restatements of annual financial statements or material weaknesses in internal controls, we usually recommend voting against the entire audit committee.

Reasons why we may not recommend ratification of an auditor include:

1. When audit fees plus audit-related fees total less than the tax fees and/or other non-audit fees.
2. Recent material restatements of annual financial statements, including those resulting in the reporting

⁴⁶ "Final Report of the Advisory Committee on the Auditing Profession to the U.S. Department of the Treasury," p. VIII:20, October 6, 2008.

of material weaknesses in internal controls and including late filings by the company where the auditor bears some responsibility for the restatement or late filing.⁴⁷

3. When the auditor performs prohibited services such as tax-shelter work, tax services for the CEO or CFO, or contingent-fee work, such as a fee based on a percentage of economic benefit to the company.
4. When audit fees are excessively low, especially when compared with other companies in the same industry.
5. When the company has aggressive accounting policies.
6. When the company has poor disclosure or lack of transparency in its financial statements.
7. Where the auditor limited its liability through its contract with the company or the audit contract requires the corporation to use alternative dispute resolution procedures without adequate justification.
8. We also look for other relationships or concerns with the auditor that might suggest a conflict between the auditor's interests and shareholder interests.

PENSION ACCOUNTING ISSUES

A pension accounting question occasionally raised in proxy proposals is what effect, if any, projected returns on employee pension assets should have on a company's net income. This issue often arises in the executive-compensation context in a discussion of the extent to which pension accounting should be reflected in business performance for purposes of calculating payments to executives.

Glass Lewis believes that pension credits should not be included in measuring income that is used to award performance-based compensation. Because many of the assumptions used in accounting for retirement plans are subject to the company's discretion, management would have an obvious conflict of interest if pay were tied to pension income. In our view, projected income from pensions does not truly reflect a company's performance.

⁴⁷ An auditor does not audit interim financial statements. Thus, we generally do not believe that an auditor should be opposed due to a restatement of interim financial statements unless the nature of the misstatement is clear from a reading of the incorrect financial statements.

III. The Link Between Compensation and Performance

Glass Lewis carefully reviews the compensation awarded to senior executives, as we believe that this is an important area in which the board's priorities are revealed. Glass Lewis strongly believes executive compensation should be linked directly with the performance of the business the executive is charged with managing. We believe the most effective compensation arrangements provide for an appropriate mix of performance-based short- and long-term incentives in addition to fixed pay elements while promoting a prudent and sustainable level of risk-taking.

Glass Lewis believes that comprehensive, timely and transparent disclosure of executive pay is critical to allowing shareholders to evaluate the extent to which pay is aligned with company performance. When reviewing proxy materials, Glass Lewis examines whether the company discloses the performance metrics used to determine executive compensation. We recognize performance metrics must necessarily vary depending on the company and industry, among other factors, and may include a wide variety of financial measures as well as industry-specific performance indicators. However, we believe companies should disclose why the specific performance metrics were selected and how the actions they are designed to incentivize will lead to better corporate performance.

Moreover, it is rarely in shareholders' interests to disclose competitive data about individual salaries below the senior executive level. Such disclosure could create internal personnel discord that would be counterproductive for the company and its shareholders. While we favor full disclosure for senior executives and we view pay disclosure at the aggregate level (e.g., the number of employees being paid over a certain amount or in certain categories) as potentially useful, we do not believe shareholders need or will benefit from detailed reports about individual management employees other than the most senior executives.

ADVISORY VOTE ON EXECUTIVE COMPENSATION ("SAY-ON-PAY")

The Dodd-Frank Wall Street Reform and Consumer Protection Act (the "Dodd-Frank Act") required companies to hold an advisory vote on executive compensation at the first shareholder meeting that occurs six months after enactment of the bill (January 21, 2011).

This practice of allowing shareholders a non-binding vote on a company's compensation report is standard practice in many non-US countries, and has been a requirement for most companies in the United Kingdom since 2003 and in Australia since 2005. Although say-on-pay proposals are non-binding, a high level of "against" or "abstain" votes indicates substantial shareholder concern about a company's compensation policies and procedures.

Given the complexity of most companies' compensation programs, Glass Lewis applies a highly nuanced approach when analyzing advisory votes on executive compensation. We review each company's compensation on a case-by-case basis, recognizing that each company must be examined in the context of industry, size, maturity, performance, financial condition, its historic pay for performance practices, and any other relevant internal or external factors.

We believe that each company should design and apply specific compensation policies and practices that are appropriate to the circumstances of the company and, in particular, will attract and retain competent executives and other staff, while motivating them to grow the company's long-term shareholder value.

Where we find those specific policies and practices serve to reasonably align compensation with performance, and such practices are adequately disclosed, Glass Lewis will recommend supporting the company's approach. If, however, those specific policies and practices fail to demonstrably link compensation with performance, Glass Lewis will generally recommend voting against the say-on-pay proposal.

Glass Lewis reviews say-on-pay proposals on both a qualitative basis and a quantitative basis, with a focus on several main areas:

- The overall design and structure of the company’s executive compensation programs including selection and challenging nature of performance metrics;
- The implementation and effectiveness of the company’s executive compensation programs including pay mix and use of performance metrics in determining pay levels;
- The quality and content of the company’s disclosure;
- The quantum paid to executives; and
- The link between compensation and performance as indicated by the company’s current and past pay-for-performance grades.

We also review any significant changes or modifications, and the rationale for such changes, made to the company’s compensation structure or award amounts, including base salaries.

SAY-ON-PAY VOTING RECOMMENDATIONS

In cases where we find deficiencies in a company’s compensation program’s design, implementation or management, we will recommend that shareholders vote against the say-on-pay proposal. Generally such instances include evidence of a pattern of poor pay-for-performance practices (i.e., deficient or failing pay for performance grades), unclear or questionable disclosure regarding the overall compensation structure (e.g., limited information regarding benchmarking processes, limited rationale for bonus performance metrics and targets, etc.), questionable adjustments to certain aspects of the overall compensation structure (e.g., limited rationale for significant changes to performance targets or metrics, the payout of guaranteed bonuses or sizable retention grants, etc.), and/or other egregious compensation practices.

Although not an exhaustive list, the following issues when weighed together may cause Glass Lewis to recommend voting against a say-on-pay vote:

- Inappropriate peer group and/or benchmarking issues;
- Inadequate or no rationale for changes to peer groups;
- Egregious or excessive bonuses, equity awards or severance payments, including golden handshakes and golden parachutes;
- Problematic contractual payments, such as guaranteed bonuses;
- Targeting overall levels of compensation at higher than median without adequate justification;
- Performance targets not sufficiently challenging, and/or providing for high potential payouts;
- Performance targets lowered without justification;
- Discretionary bonuses paid when short- or long-term incentive plan targets were not met;
- Executive pay high relative to peers not justified by outstanding company performance; and
- The terms of the long-term incentive plans are inappropriate (please see “Long-Term Incentives” on page 29).

In instances where a company has simply failed to provide sufficient disclosure of its policies, we may recommend shareholders vote against this proposal solely on this basis, regardless of the appropriateness of compensation levels.

Where we identify egregious compensation practices, we may also recommend voting against the compensation committee based on the practices or actions of its members during the year. Such practices may include: approving large one-off payments, the inappropriate, unjustified use of discretion, or sustained poor pay for performance practices.

COMPANY RESPONSIVENESS

At companies that received a significant level of shareholder opposition (25% or greater) to their say-on-pay proposal at the previous annual meeting, we believe the board should demonstrate some level of engagement and responsiveness to the shareholder concerns behind the discontent, particularly in response to shareholder engagement. While we recognize that sweeping changes cannot be made to a compensation program without due consideration and that a majority of shareholders voted in favor of the proposal, given that the average approval rate for say-on-pay proposals is about 90% we believe the compensation committee should provide some level of response to a significant vote against, including engaging with large shareholders to identify their concerns. In the absence of any evidence that the board is actively engaging shareholders on these issues and responding accordingly, we may recommend holding compensation committee members accountable for failing to adequately respond to shareholder opposition, giving careful consideration to the level of shareholder protest and the severity and history of compensation problems.

PAY FOR PERFORMANCE

Glass Lewis believes an integral part of a well-structured compensation package is a successful link between pay and performance. Our proprietary pay-for-performance model was developed to better evaluate the link between pay and performance of the top five executives at US companies. Our model benchmarks these executives' pay and company performance against peers selected using Equilar's market-based peer groups and across five performance metrics. By measuring the magnitude of the gap between two weighted-average percentile rankings (executive compensation and performance), we grade companies based on a school letter system: "A", "B", "F", etc. The grades guide our evaluation of compensation committee effectiveness and we generally recommend voting against compensation committee of companies with a pattern of failing our pay-for-performance analysis.

We also use this analysis to inform our voting decisions on say-on-pay proposals. As such, if a company receives a failing grade from our proprietary model, we are more likely to recommend that shareholders vote against the say-on-pay proposal. However, other qualitative factors such as an effective overall incentive structure, the relevance of selected performance metrics, significant forthcoming enhancements or reasonable long-term payout levels may give us cause to recommend in favor of a proposal even when we have identified a disconnect between pay and performance.

SHORT-TERM INCENTIVES

A short-term bonus or incentive ("STI") should be demonstrably tied to performance. Whenever possible, we believe a mix of corporate and individual performance measures is appropriate. We would normally expect performance measures for STIs to be based on company-wide or divisional financial measures as well as non-financial factors such as those related to safety, environmental issues, and customer satisfaction. While we recognize that companies operating in different sectors or markets may seek to utilize a wide range of metrics, we expect such measures to be appropriately tied to a company's business drivers.

Further, the target and potential maximum awards that can be achieved under STI awards should be disclosed. Shareholders should expect stretching performance targets for the maximum award to be achieved. Any increase in the potential target and maximum award should be clearly justified to shareholders.

Glass Lewis recognizes that disclosure of some measures may include commercially confidential information. Therefore, we believe it may be reasonable to exclude such information in some cases as long as the company provides sufficient justification for non-disclosure. However, where a short-term bonus has been paid, companies should disclose the extent to which performance has been achieved against relevant targets, including disclosure of the actual target achieved.

Where management has received significant STIs but short-term performance over the previous year prima facie appears to be poor or negative, we believe the company should provide a clear explanation of why these significant short-term payments were made. In addition, we believe that where companies use non-GAAP or bespoke metrics, clear reconciliations between these figures and GAAP figures in audited financial statement should be provided.

LONG-TERM INCENTIVES

Glass Lewis recognizes the value of equity-based incentive programs, which are often the primary long-term incentive for executives. When used appropriately, they can provide a vehicle for linking an executive's pay to company performance, thereby aligning their interests with those of shareholders. In addition, equity-based compensation can be an effective way to attract, retain and motivate key employees.

There are certain elements that Glass Lewis believes are common to most well-structured long-term incentive ("LTI") plans. These include:

- No re-testing or lowering of performance conditions;
- Performance metrics that cannot be easily manipulated by management;
- Two or more performance metrics;
- At least one relative performance metric that compares the company's performance to a relevant peer group or index;
- Performance periods of at least three years;
- Stretching metrics that incentivize executives to strive for outstanding performance while not encouraging excessive risk-taking; and
- Individual limits expressed as a percentage of base salary.

Performance measures should be carefully selected and should relate to the specific business/industry in which the company operates and, especially, the key value drivers of the company's business. As with short-term incentive plans, the basis for any adjustments to metrics or results should be clearly explained.

While cognizant of the inherent complexity of certain performance metrics, Glass Lewis generally believes that measuring a company's performance with multiple metrics serves to provide a more complete picture of the company's performance than a single metric; further, reliance on just one metric may focus too much management attention on a single target and is therefore more susceptible to manipulation. When utilized for relative measurements, external benchmarks such as a sector index or peer group should be disclosed and transparent. The rationale behind the selection of a specific index or peer group should also be disclosed. Internal benchmarks should also be disclosed and transparent, unless a cogent case for confidentiality is made and fully explained. Similarly, actual performance and vesting levels for previous grants earned during the fiscal year should be disclosed.

We also believe shareholders should evaluate the relative success of a company's compensation programs, particularly with regard to existing equity-based incentive plans, in linking pay and performance when evaluating new LTI plans to determine the impact of additional stock awards. We will therefore review the company's

pay-for-performance grade (see below for more information) and specifically the proportion of total compensation that is stock-based.

TRANSITIONAL AND ONE-OFF AWARDS

Glass Lewis believes shareholders should generally be wary of awards granted outside of the standard incentive schemes outlined above, as such awards have the potential to undermine the integrity of a company's regular incentive plans, the link between pay and performance or both. We generally believe that if the existing incentive programs fail to provide adequate incentives to executives, companies should redesign their compensation programs rather than make additional grants.

However, we recognize that in certain circumstances, additional incentives may be appropriate. In these cases, companies should provide a thorough description of the awards, including a cogent and convincing explanation of their necessity and why existing awards do not provide sufficient motivation. Further, such awards should be tied to future service and performance whenever possible.

Similarly, we acknowledge that there may be certain costs associated with transitions at the executive level. We believe that sign-on arrangements should be clearly disclosed and accompanied by a meaningful explanation of the payments and the process by which the amounts are reached. Furthermore, the details of and basis for any "make-whole" payments (which are paid as compensation for forfeited awards from a previous employer) should be provided.

While in limited circumstances such deviations may not be inappropriate, we believe shareholders should be provided with a meaningful explanation of any additional benefits agreed upon outside of the regular arrangements. For severance or sign-on arrangements, we may consider the executive's regular target compensation levels or the sums paid to other executives (including the recipient's predecessor, where applicable) in evaluating the appropriateness of such an arrangement.

Additionally, we believe companies making supplemental or one-time awards should also describe if and how the regular compensation arrangements will be affected by these additional grants. In reviewing a company's use of supplemental awards, Glass Lewis will evaluate the terms and size of the grants in the context of the company's overall incentive strategy and granting practices, as well as the current operating environment.

RECOUPMENT PROVISIONS ("CLAWBACKS")

We believe it is prudent for boards to adopt detailed and stringent bonus recoupment policies to prevent executives from retaining performance-based awards that were not truly earned. We believe such "clawback" policies should be triggered in the event of a restatement of financial results or similar revision of performance indicators upon which bonuses were based. Such policies would allow the board to review all performance-related bonuses and awards made to senior executives during the period covered by a restatement and would, to the extent feasible, allow the company to recoup such bonuses in the event that performance goals were not actually achieved. We further believe clawback policies should be subject to only limited discretion to ensure the integrity of such policies.

Section 954 of the Dodd-Frank Act requires the SEC to create a rule requiring listed companies to adopt policies for recouping certain compensation during a three-year look-back period. The rule applies to incentive-based compensation paid to current or former executives if the company is required to prepare an accounting restatement due to erroneous data resulting from material non-compliance with any financial reporting requirements under the securities laws. However, the SEC has yet to finalize the relevant rules.

These recoupment provisions are more stringent than under Section 304 of the Sarbanes-Oxley Act in three respects: (i) the provisions extend to current or former executive officers rather than only to the CEO and CFO; (ii) it has a three-year look-back period (rather than a twelve-month look-back period); and (iii) it allows for recovery of compensation based upon a financial restatement due to erroneous data, and therefore does not require misconduct on the part of the executive or other employees.

HEDGING OF STOCK

Glass Lewis believes that the hedging of shares by executives in the shares of the companies where they are employed severs the alignment of interests of the executive with shareholders. We believe companies should adopt strict policies to prohibit executives from hedging the economic risk associated with their shareownership in the company.

PLEDGING OF STOCK

Glass Lewis believes that shareholders should examine the facts and circumstances of each company rather than apply a one-size-fits-all policy regarding employee stock pledging. Glass Lewis believes that shareholders benefit when employees, particularly senior executives have “skin-in-the-game” and therefore recognizes the benefits of measures designed to encourage employees to both buy shares out of their own pocket and to retain shares they have been granted; blanket policies prohibiting stock pledging may discourage executives and employees from doing either.

However, we also recognize that the pledging of shares can present a risk that, depending on a host of factors, an executive with significant pledged shares and limited other assets may have an incentive to take steps to avoid a forced sale of shares in the face of a rapid stock price decline. Therefore, to avoid substantial losses from a forced sale to meet the terms of the loan, the executive may have an incentive to boost the stock price in the short term in a manner that is unsustainable, thus hurting shareholders in the long-term. We also recognize concerns regarding pledging may not apply to less senior employees, given the latter group’s significantly more limited influence over a company’s stock price. Therefore, we believe that the issue of pledging shares should be reviewed in that context, as should policies that distinguish between the two groups.

Glass Lewis believes that the benefits of stock ownership by executives and employees may outweigh the risks of stock pledging, depending on many factors. As such, Glass Lewis reviews all relevant factors in evaluating proposed policies, limitations and prohibitions on pledging stock, including:

- The number of shares pledged;
- The percentage executives’ pledged shares are of outstanding shares;
- The percentage executives’ pledged shares are of each executive’s shares and total assets;
- Whether the pledged shares were purchased by the employee or granted by the company;
- Whether there are different policies for purchased and granted shares;
- Whether the granted shares were time-based or performance-based;
- The overall governance profile of the company;
- The volatility of the company’s stock (in order to determine the likelihood of a sudden stock price drop);
- The nature and cyclical, if applicable, of the company’s industry;
- The participation and eligibility of executives and employees in pledging;
- The company’s current policies regarding pledging and any waiver from these policies for employees and executives; and
- Disclosure of the extent of any pledging, particularly among senior executives.

COMPENSATION CONSULTANT INDEPENDENCE

As mandated by Section 952 of the Dodd-Frank Act, as of January 11, 2013, the SEC approved new listing requirements for both the NYSE and NASDAQ which require compensation committees to consider six factors in assessing compensation advisor independence. These factors include: (1) provision of other services to the company; (2) fees paid by the company as a percentage of the advisor's total annual revenue; (3) policies and procedures of the advisor to mitigate conflicts of interests; (4) any business or personal relationships of the consultant with any member of the compensation committee; (5) any company stock held by the consultant; and (6) any business or personal relationships of the consultant with any executive officer of the company. According to the SEC, "no one factor should be viewed as a determinative factor." Glass Lewis believes this six-factor assessment is an important process for every compensation committee to undertake but believes companies employing a consultant for board compensation, consulting and other corporate services should provide clear disclosure beyond just a reference to examining the six points to allow shareholders to review the specific aspects of the various consultant relationships.

We believe compensation consultants are engaged to provide objective, disinterested, expert advice to the compensation committee. When the consultant or its affiliates receive substantial income from providing other services to the company, we believe the potential for a conflict of interest arises and the independence of the consultant may be jeopardized. Therefore, Glass Lewis will, when relevant, note the potential for a conflict of interest when the fees paid to the advisor or its affiliates for other services exceeds those paid for compensation consulting.

FREQUENCY OF SAY-ON-PAY

The Dodd-Frank Act also requires companies to allow shareholders a non-binding vote on the frequency of say-on-pay votes, i.e. every one, two or three years. Additionally, Dodd-Frank requires companies to hold such votes on the frequency of say-on-pay votes at least once every six years.

We believe companies should submit say-on-pay votes to shareholders every year. We believe that the time and financial burdens to a company with regard to an annual vote are relatively small and incremental and are outweighed by the benefits to shareholders through more frequent accountability. Implementing biannual or triennial votes on executive compensation limits shareholders' ability to hold the board accountable for its compensation practices through means other than voting against the compensation committee. Unless a company provides a compelling rationale or unique circumstances for say-on-pay votes less frequent than annually, we will generally recommend that shareholders support annual votes on compensation.

VOTE ON GOLDEN PARACHUTE ARRANGEMENTS

The Dodd-Frank Act also requires companies to provide shareholders with a separate non-binding vote on approval of golden parachute compensation arrangements in connection with certain change-in-control transactions. However, if the golden parachute arrangements have previously been subject to a say-on-pay vote which shareholders approved, then this required vote is waived.

Glass Lewis believes the narrative and tabular disclosure of golden parachute arrangements benefits all shareholders. Glass Lewis analyzes each golden parachute arrangement on a case-by-case basis, taking into account, among other items: the nature of the change-in-control transaction, the ultimate value of the payments particularly compared to the value of the transaction, any excise tax gross-up obligations, the tenure and position of the executives in question before and after the transaction, any new or amended employment agreements entered into in connection with the transaction, and the type of triggers involved (i.e., single vs. double).

EQUITY-BASED COMPENSATION PLAN PROPOSALS

We believe that equity compensation awards, when not abused, are useful for retaining employees and providing an incentive for them to act in a way that will improve company performance. Glass Lewis recognizes

that equity-based compensation plans are critical components of a company's overall compensation program and we analyze such plans accordingly based on both quantitative and qualitative factors.

Our quantitative analysis assesses the plan's cost and the company's pace of granting utilizing a number of different analyses, comparing the program with absolute limits we believe are key to equity value creation and with a carefully chosen peer group. In general, our model seeks to determine whether the proposed plan is either absolutely excessive or is more than one standard deviation away from the average plan for the peer group on a range of criteria, including dilution to shareholders and the projected annual cost relative to the company's financial performance. Each of the analyses (and their constituent parts) is weighted and the plan is scored in accordance with that weight.

We compare the program's expected annual expense with the business's operating metrics to help determine whether the plan is excessive in light of company performance. We also compare the plan's expected annual cost to the enterprise value of the firm rather than to market capitalization because the employees, managers and directors of the firm contribute to the creation of enterprise value but not necessarily market capitalization (the biggest difference is seen where cash represents the vast majority of market capitalization). Finally, we do not rely exclusively on relative comparisons with averages because, in addition to creeping averages serving to inflate compensation, we believe that some absolute limits are warranted.

We then consider qualitative aspects of the plan such as plan administration, the method and terms of exercise, repricing history, express or implied rights to reprice, and the presence of evergreen provisions. We also closely review the choice and use of, and difficulty in meeting, the awards' performance metrics and targets, if any. We believe significant changes to the terms of a plan should be explained for shareholders and clearly indicated. Other factors such as a company's size and operating environment may also be relevant in assessing the severity of concerns or the benefits of certain changes. Finally, we may consider a company's executive compensation practices in certain situations, as applicable.

We evaluate equity plans based on certain overarching principles:

- Companies should seek more shares only when needed;
- Requested share amounts should be small enough that companies seek shareholder approval every three to four years (or more frequently);
- If a plan is relatively expensive, it should not grant options solely to senior executives and board members;
- Dilution of annual net share count or voting power, along with the "overhang" of incentive plans, should be limited;
- Annual cost of the plan (especially if not shown on the income statement) should be reasonable as a percentage of financial results and should be in line with the peer group;
- The expected annual cost of the plan should be proportional to the business's value;
- The intrinsic value that option grantees received in the past should be reasonable compared with the business's financial results;
- Plans should not permit re-pricing of stock options;
- Plans should not contain excessively liberal administrative or payment terms;
- Plans should not count shares in ways that understate the potential dilution, or cost, to common shareholders. This refers to "inverse" full-value award multipliers;

- Selected performance metrics should be challenging and appropriate, and should be subject to relative performance measurements; and
- Stock grants should be subject to minimum vesting and/or holding periods sufficient to ensure sustainable performance and promote retention.

OPTION EXCHANGES

Glass Lewis views option repricing plans and option exchange programs with great skepticism. Shareholders have substantial risk in owning stock and we believe that the employees, officers, and directors who receive stock options should be similarly situated to align their interests with shareholder interests.

We are concerned that option grantees who believe they will be “rescued” from underwater options will be more inclined to take unjustifiable risks. Moreover, a predictable pattern of repricing or exchanges substantially alters a stock option’s value because options that will practically never expire deeply out of the money are worth far more than options that carry a risk of expiration.

In short, repricings and option exchange programs change the bargain between shareholders and employees after the bargain has been struck.

There is one circumstance in which a repricing or option exchange program may be acceptable: if macroeconomic or industry trends, rather than specific company issues, cause a stock’s value to decline dramatically and the repricing is necessary to motivate and retain employees. In this circumstance, we think it fair to conclude that option grantees may be suffering from a risk that was not foreseeable when the original “bargain” was struck. In such a circumstance, we will recommend supporting a repricing if the following conditions are true:

- Officers and board members cannot participate in the program;
- The stock decline mirrors the market or industry price decline in terms of timing and approximates the decline in magnitude;
- The exchange is value-neutral or value-creative to shareholders using very conservative assumptions and with a recognition of the adverse selection problems inherent in voluntary programs; and
- Management and the board make a cogent case for needing to motivate and retain existing employees, such as being in a competitive employment market.

OPTION BACKDATING, SPRING-LOADING AND BULLET-DODGING

Glass Lewis views option backdating, and the related practices of spring-loading and bullet-dodging, as egregious actions that warrant holding the appropriate management and board members responsible. These practices are similar to re-pricing options and eliminate much of the downside risk inherent in an option grant that is designed to induce recipients to maximize shareholder return.

Backdating an option is the act of changing an option’s grant date from the actual grant date to an earlier date when the market price of the underlying stock was lower, resulting in a lower exercise price for the option. Since 2006, Glass Lewis has identified over 270 companies that have disclosed internal or government investigations into their past stock-option grants.

Spring-loading is granting stock options while in possession of material, positive information that has not been disclosed publicly. Bullet-dodging is delaying the grants of stock options until after the release of material, negative information. This can allow option grants to be made at a lower price either before the release of positive news or following the release of negative news, assuming the stock’s price will move up or down in response to the information. This raises a concern similar to that of insider trading, or the trading on material non-public information.

The exercise price for an option is determined on the day of grant, providing the recipient with the same market risk as an investor who bought shares on that date. However, where options were backdated, the executive or the board (or the compensation committee) changed the grant date retroactively. The new date may be at or near the lowest price for the year or period. This would be like allowing an investor to look back and select the lowest price of the year at which to buy shares.

A 2006 study of option grants made between 1996 and 2005 at 8,000 companies found that option backdating can be an indication of poor internal controls. The study found that option backdating was more likely to occur at companies without a majority independent board and with a long-serving CEO; both factors, the study concluded, were associated with greater CEO influence on the company's compensation and governance practices.⁴⁸

Where a company granted backdated options to an executive who is also a director, Glass Lewis will recommend voting against that executive/director, regardless of who decided to make the award. In addition, Glass Lewis will recommend voting against those directors who either approved or allowed the backdating. Glass Lewis feels that executives and directors who either benefited from backdated options or authorized the practice have breached their fiduciary responsibility to shareholders.

Given the severe tax and legal liabilities to the company from backdating, Glass Lewis will consider recommending voting against members of the audit committee who served when options were backdated, a restatement occurs, material weaknesses in internal controls exist and disclosures indicate there was a lack of documentation. These committee members failed in their responsibility to ensure the integrity of the company's financial reports.

When a company has engaged in spring-loading or bullet-dodging, Glass Lewis will consider recommending voting against the compensation committee members where there has been a pattern of granting options at or near historic lows. Glass Lewis will also recommend voting against executives serving on the board who benefited from the spring-loading or bullet-dodging.

DIRECTOR COMPENSATION PLANS

Glass Lewis believes that non-employee directors should receive reasonable and appropriate compensation for the time and effort they spend serving on the board and its committees. However, a balance is required. Fees should be competitive in order to retain and attract qualified individuals, but excessive fees represent a financial cost to the company and potentially compromise the objectivity and independence of non-employee directors. We will consider recommending supporting compensation plans that include option grants or other equity-based awards that help to align the interests of outside directors with those of shareholders. However, equity grants to directors should not be performance-based to ensure directors are not incentivized in the same manner as executives but rather serve as a check on imprudent risk-taking in executive compensation plan design.

Glass Lewis uses a proprietary model and analyst review to evaluate the costs of equity plans compared to the plans of peer companies with similar market capitalizations. We use the results of this model to guide our voting recommendations on stock-based director compensation plans.

EMPLOYEE STOCK PURCHASE PLANS

Glass Lewis believes that employee stock purchase plans ("ESPPs") can provide employees with a sense of ownership in their company and help strengthen the alignment between the interests of employees and shareholders. We evaluate ESPPs by assessing the expected discount, purchase period, expected purchase activity (if previous activity has been disclosed) and whether the plan has a "lookback" feature. Except for the most extreme cases, Glass Lewis will generally support these plans given the regulatory purchase limit of \$25,000 per employee per year, which we believe is reasonable. We also look at the number of shares requested to see if a ESPP will significantly contribute to overall shareholder dilution or if shareholders will not

⁴⁸ Lucian Bebchuk, Yaniv Grinstein and Urs Peyer. "LUCKY CEOs." November, 2006.

have a chance to approve the program for an excessive period of time. As such, we will generally recommend against ESPPs that contain “evergreen” provisions that automatically increase the number of shares available under the ESPP each year.

EXECUTIVE COMPENSATION TAX DEDUCTIBILITY (IRS 162(M) COMPLIANCE)

Section 162(m) of the Internal Revenue Code allows companies to deduct compensation in excess of \$1 million for the CEO and the next three most highly compensated executive officers, excluding the CFO, if the compensation is performance-based and is paid under shareholder-approved plans. Companies therefore submit incentive plans for shareholder approval to take advantage of the tax deductibility afforded under 162(m) for certain types of compensation.

We believe the best practice for companies is to provide robust disclosure to shareholders so that they can make fully-informed judgments about the reasonableness of the proposed compensation plan. To allow for meaningful shareholder review, we prefer that disclosure should include specific performance metrics, a maximum award pool, and a maximum award amount per employee. We also believe it is important to analyze the estimated grants to see if they are reasonable and in line with the company’s peers.

We typically recommend voting against a 162(m) proposal where: (i) a company fails to provide at least a list of performance targets; (ii) a company fails to provide one of either a total maximum or an individual maximum; or (iii) the proposed plan or individual maximum award limit is excessive when compared with the plans of the company’s peers.

The company’s record of aligning pay with performance (as evaluated using our proprietary pay-for-performance model) also plays a role in our recommendation. Where a company has a record of setting reasonable pay relative to business performance, we generally recommend voting in favor of a plan even if the plan caps seem large relative to peers because we recognize the value in special pay arrangements for continued exceptional performance.

As with all other issues we review, our goal is to provide consistent but contextual advice given the specifics of the company and ongoing performance. Overall, we recognize that it is generally not in shareholders’ best interests to vote against such a plan and forgo the potential tax benefit since shareholder rejection of such plans will not curtail the awards; it will only prevent the tax deduction associated with them.

IV. Governance Structure and the Shareholder Franchise

ANTI-TAKEOVER MEASURES

POISON PILLS (SHAREHOLDER RIGHTS PLANS)

Glass Lewis believes that poison pill plans are not generally in shareholders' best interests. They can reduce management accountability by substantially limiting opportunities for corporate takeovers. Rights plans can thus prevent shareholders from receiving a buy-out premium for their stock. Typically we recommend that shareholders vote against these plans to protect their financial interests and ensure that they have an opportunity to consider any offer for their shares, especially those at a premium.

We believe boards should be given wide latitude in directing company activities and in charting the company's course. However, on an issue such as this, where the link between the shareholders' financial interests and their right to consider and accept buyout offers is substantial, we believe that shareholders should be allowed to vote on whether they support such a plan's implementation. This issue is different from other matters that are typically left to board discretion. Its potential impact on and relation to shareholders is direct and substantial. It is also an issue in which management interests may be different from those of shareholders; thus, ensuring that shareholders have a voice is the only way to safeguard their interests.

In certain circumstances, we will support a poison pill that is limited in scope to accomplish a particular objective, such as the closing of an important merger, or a pill that contains what we believe to be a reasonable qualifying offer clause. We will consider supporting a poison pill plan if the qualifying offer clause includes each of the following attributes:

- The form of offer is not required to be an all-cash transaction;
- The offer is not required to remain open for more than 90 business days;
- The offeror is permitted to amend the offer, reduce the offer, or otherwise change the terms;
- There is no fairness opinion requirement; and
- There is a low to no premium requirement.

Where these requirements are met, we typically feel comfortable that shareholders will have the opportunity to voice their opinion on any legitimate offer.

NOL POISON PILLS

Similarly, Glass Lewis may consider supporting a limited poison pill in the event that a company seeks shareholder approval of a rights plan for the express purpose of preserving Net Operating Losses (NOLs). While companies with NOLs can generally carry these losses forward to offset future taxable income, Section 382 of the Internal Revenue Code limits companies' ability to use NOLs in the event of a "change of ownership."⁴⁹ In this case, a company may adopt or amend a poison pill ("NOL pill") in order to prevent an inadvertent change of ownership by multiple investors purchasing small chunks of stock at the same time, and thereby preserve the ability to carry the NOLs forward. Often such NOL pills have trigger thresholds much lower than the common 15% or 20% thresholds, with some NOL pill triggers as low as 5%.

⁴⁹ Section 382 of the Internal Revenue Code refers to a "change of ownership" of more than 50 percentage points by one or more 5% shareholders within a three-year period. The statute is intended to deter the "trafficking" of net operating losses.

Glass Lewis evaluates NOL pills on a strictly case-by-case basis taking into consideration, among other factors, the value of the NOLs to the company, the likelihood of a change of ownership based on the size of the holding and the nature of the larger shareholders, the trigger threshold and whether the term of the plan is limited in duration (i.e., whether it contains a reasonable “sunset” provision) or is subject to periodic board review and/or shareholder ratification. However, we will recommend that shareholders vote against a proposal to adopt or amend a pill to include NOL protective provisions if the company has adopted a more narrowly tailored means of preventing a change in control to preserve its NOLs. For example, a company may limit share transfers in its charter to prevent a change of ownership from occurring.

Furthermore, we believe that shareholders should be offered the opportunity to vote on any adoption or renewal of a NOL pill regardless of any potential tax benefit that it offers a company. As such, we will consider recommending voting against those members of the board who served at the time when an NOL pill was adopted without shareholder approval within the prior twelve months and where the NOL pill is not subject to shareholder ratification.

FAIR PRICE PROVISIONS

Fair price provisions, which are rare, require that certain minimum price and procedural requirements be observed by any party that acquires more than a specified percentage of a corporation’s common stock. The provision is intended to protect minority shareholder value when an acquirer seeks to accomplish a merger or other transaction which would eliminate or change the interests of the minority stockholders. The provision is generally applied against the acquirer unless the takeover is approved by a majority of “continuing directors” and holders of a majority, in some cases a supermajority as high as 80%, of the combined voting power of all stock entitled to vote to alter, amend, or repeal the above provisions.

The effect of a fair price provision is to require approval of any merger or business combination with an “interested stockholder” by 51% of the voting stock of the company, excluding the shares held by the interested stockholder. An interested stockholder is generally considered to be a holder of 10% or more of the company’s outstanding stock, but the trigger can vary.

Generally, provisions are put in place for the ostensible purpose of preventing a back-end merger where the interested stockholder would be able to pay a lower price for the remaining shares of the company than he or she paid to gain control. The effect of a fair price provision on shareholders, however, is to limit their ability to gain a premium for their shares through a partial tender offer or open market acquisition which typically raise the share price, often significantly. A fair price provision discourages such transactions because of the potential costs of seeking shareholder approval and because of the restrictions on purchase price for completing a merger or other transaction at a later time.

Glass Lewis believes that fair price provisions, while sometimes protecting shareholders from abuse in a takeover situation, more often act as an impediment to takeovers, potentially limiting gains to shareholders from a variety of transactions that could significantly increase share price. In some cases, even the independent directors of the board cannot make exceptions when such exceptions may be in the best interests of shareholders. Given the existence of state law protections for minority shareholders such as Section 203 of the Delaware Corporations Code, we believe it is in the best interests of shareholders to remove fair price provisions.

REINCORPORATION

In general, Glass Lewis believes that the board is in the best position to determine the appropriate jurisdiction of incorporation for the company. When examining a management proposal to reincorporate to a different state or country, we review the relevant financial benefits, generally related to improved corporate tax treatment, as well as changes in corporate governance provisions, especially those relating to shareholder rights, resulting from the change in domicile. Where the financial benefits are de minimis and there is a decrease in shareholder rights, we will recommend voting against the transaction.

However, costly, shareholder-initiated reincorporations are typically not the best route to achieve the furtherance of shareholder rights. We believe shareholders are generally better served by proposing specific shareholder resolutions addressing pertinent issues which may be implemented at a lower cost, and perhaps even with board approval. However, when shareholders propose a shift into a jurisdiction with enhanced shareholder rights, Glass Lewis examines the significant ways would the company benefit from shifting jurisdictions including the following:

- Is the board sufficiently independent?
- Does the company have anti-takeover protections such as a poison pill or classified board in place?
- Has the board been previously unresponsive to shareholders (such as failing to implement a shareholder proposal that received majority shareholder support)?
- Do shareholders have the right to call special meetings of shareholders?
- Are there other material governance issues of concern at the company?
- Has the company's performance matched or exceeded its peers in the past one and three years?
- How has the company ranked in Glass Lewis' pay-for-performance analysis during the last three years?
- Does the company have an independent chair?

We note, however, that we will only support shareholder proposals to change a company's place of incorporation in exceptional circumstances.

EXCLUSIVE FORUM AND FEE-SHIFTING BYLAW PROVISIONS

Glass Lewis recognizes that companies may be subject to frivolous and opportunistic lawsuits, particularly in conjunction with a merger or acquisition, that are expensive and distracting. In response, companies have sought ways to prevent or limit the risk of such suits by adopting bylaws regarding where the suits must be brought or shifting the burden of the legal expenses to the plaintiff, if unsuccessful at trial.

Glass Lewis believes that charter or bylaw provisions limiting a shareholder's choice of legal venue are not in the best interests of shareholders. Such clauses may effectively discourage the use of shareholder claims by increasing their associated costs and making them more difficult to pursue. As such, shareholders should be wary about approving any limitation on their legal recourse including limiting themselves to a single jurisdiction (e.g., Delaware) without compelling evidence that it will benefit shareholders.

For this reason, we recommend that shareholders vote against any bylaw or charter amendment seeking to adopt an exclusive forum provision unless the company: (i) provides a compelling argument on why the provision would directly benefit shareholders; (ii) provides evidence of abuse of legal process in other, non-favored jurisdictions; (iii) narrowly tailors such provision to the risks involved; and (iv) maintains a strong record of good corporate governance practices.

Moreover, in the event a board seeks shareholder approval of a forum selection clause pursuant to a bundled bylaw amendment rather than as a separate proposal, we will weigh the importance of the other bundled provisions when determining the vote recommendation on the proposal. We will nonetheless recommend voting against the governance committee chair or bundling disparate proposals into a single proposal (refer to our discussion of nominating and governance committee performance in Section I of the guidelines).

Similarly, some companies have adopted bylaws requiring plaintiffs who sue the company and fail to receive a judgment in their favor pay the legal expenses of the company. These bylaws, also known as “fee-shifting” or “loser pays” bylaws, will likely have a chilling effect on even meritorious shareholder lawsuits as shareholders would face a strong financial disincentive not to sue a company. Glass Lewis therefore strongly opposes the adoption of such fee-shifting bylaws and, if adopted without shareholder approval, will recommend voting against the governance committee. While we note that in June of 2015 the State of Delaware banned the adoption of fee-shifting bylaws, such provisions could still be adopted by companies incorporated in other states.

AUTHORIZED SHARES

Glass Lewis believes that adequate capital stock is important to a company’s operation. When analyzing a request for additional shares, we typically review four common reasons why a company might need additional capital stock:

1. **Stock Split** — We typically consider three metrics when evaluating whether we think a stock split is likely or necessary: The historical stock pre-split price, if any; the current price relative to the company’s most common trading price over the past 52 weeks; and some absolute limits on stock price that, in our view, either always make a stock split appropriate if desired by management or would almost never be a reasonable price at which to split a stock.
2. **Shareholder Defenses** — Additional authorized shares could be used to bolster takeover defenses such as a poison pill. Proxy filings often discuss the usefulness of additional shares in defending against or discouraging a hostile takeover as a reason for a requested increase. Glass Lewis is typically against such defenses and will oppose actions intended to bolster such defenses.
3. **Financing for Acquisitions** — We look at whether the company has a history of using stock for acquisitions and attempt to determine what levels of stock have typically been required to accomplish such transactions. Likewise, we look to see whether this is discussed as a reason for additional shares in the proxy.
4. **Financing for Operations** — We review the company’s cash position and its ability to secure financing through borrowing or other means. We look at the company’s history of capitalization and whether the company has had to use stock in the recent past as a means of raising capital.

Issuing additional shares can dilute existing holders in limited circumstances. Further, the availability of additional shares, where the board has discretion to implement a poison pill, can often serve as a deterrent to interested suitors. Accordingly, where we find that the company has not detailed a plan for use of the proposed shares, or where the number of shares far exceeds those needed to accomplish a detailed plan, we typically recommend against the authorization of additional shares. Similar concerns may also lead us to recommend against a proposal to conduct a reverse stock split if the board does not state that it will reduce the number of authorized common shares in a ratio proportionate to the split.

While we think that having adequate shares to allow management to make quick decisions and effectively operate the business is critical, we prefer that, for significant transactions, management come to shareholders to justify their use of additional shares rather than providing a blank check in the form of a large pool of unallocated shares available for any purpose.

ADVANCE NOTICE REQUIREMENTS

We typically recommend that shareholders vote against proposals that would require advance notice of shareholder proposals or of director nominees.

These proposals typically attempt to require a certain amount of notice before shareholders are allowed to place proposals on the ballot. Notice requirements typically range between three to six months prior to the

annual meeting. Advance notice requirements typically make it impossible for a shareholder who misses the deadline to present a shareholder proposal or a director nominee that might be in the best interests of the company and its shareholders.

We believe shareholders should be able to review and vote on all proposals and director nominees. Shareholders can always vote against proposals that appear with little prior notice. Shareholders, as owners of a business, are capable of identifying issues on which they have sufficient information and ignoring issues on which they have insufficient information. Setting arbitrary notice restrictions limits the opportunity for shareholders to raise issues that may come up after the window closes.

VOTING STRUCTURE

CUMULATIVE VOTING

Cumulative voting increases the ability of minority shareholders to elect a director by allowing shareholders to cast as many shares of the stock they own multiplied by the number of directors to be elected. As companies generally have multiple nominees up for election, cumulative voting allows shareholders to cast all of their votes for a single nominee, or a smaller number of nominees than up for election, thereby raising the likelihood of electing one or more of their preferred nominees to the board. It can be important when a board is controlled by insiders or affiliates and where the company's ownership structure includes one or more shareholders who control a majority-voting block of company stock.

Glass Lewis believes that cumulative voting generally acts as a safeguard for shareholders by ensuring that those who hold a significant minority of shares can elect a candidate of their choosing to the board. This allows the creation of boards that are responsive to the interests of all shareholders rather than just a small group of large holders.

We review cumulative voting proposals on a case-by-case basis, factoring in the independence of the board and the status of the company's governance structure. But we typically find these proposals on ballots at companies where independence is lacking and where the appropriate checks and balances favoring shareholders are not in place. In those instances we typically recommend in favor of cumulative voting.

Where a company has adopted a true majority vote standard (i.e., where a director must receive a majority of votes cast to be elected, as opposed to a modified policy indicated by a resignation policy only), Glass Lewis will recommend voting against cumulative voting proposals due to the incompatibility of the two election methods. For companies that have not adopted a true majority voting standard but have adopted some form of majority voting, Glass Lewis will also generally recommend voting against cumulative voting proposals if the company has not adopted antitakeover protections and has been responsive to shareholders.

Where a company has not adopted a majority voting standard and is facing both a shareholder proposal to adopt majority voting and a shareholder proposal to adopt cumulative voting, Glass Lewis will support only the majority voting proposal. When a company has both majority voting and cumulative voting in place, there is a higher likelihood of one or more directors not being elected as a result of not receiving a majority vote. This is because shareholders exercising the right to cumulate their votes could unintentionally cause the failed election of one or more directors for whom shareholders do not cumulate votes.

SUPERMAJORITY VOTE REQUIREMENTS

Glass Lewis believes that supermajority vote requirements impede shareholder action on ballot items critical to shareholder interests. An example is in the takeover context, where supermajority vote requirements can strongly limit the voice of shareholders in making decisions on such crucial matters as selling the business. This in turn degrades share value and can limit the possibility of buyout premiums to shareholders. Moreover, we believe that a supermajority vote requirement can enable a small group of shareholders to overrule the will of the majority shareholders. We believe that a simple majority is appropriate to approve all matters presented to shareholders.

TRANSACTION OF OTHER BUSINESS

We typically recommend that shareholders not give their proxy to management to vote on any other business items that may properly come before an annual or special meeting. In our opinion, granting unfettered discretion is unwise.

ANTI-GREENMAIL PROPOSALS

Glass Lewis will support proposals to adopt a provision preventing the payment of greenmail, which would serve to prevent companies from buying back company stock at significant premiums from a certain shareholder. Since a large or majority shareholder could attempt to compel a board into purchasing its shares at a large premium, the anti-greenmail provision would generally require that a majority of shareholders other than the majority shareholder approve the buyback.

MUTUAL FUNDS: INVESTMENT POLICIES AND ADVISORY AGREEMENTS

Glass Lewis believes that decisions about a fund's structure and/or a fund's relationship with its investment advisor or sub-advisors are generally best left to management and the members of the board, absent a showing of egregious or illegal conduct that might threaten shareholder value. As such, we focus our analyses of such proposals on the following main areas:

- The terms of any amended advisory or sub-advisory agreement;
- Any changes in the fee structure paid to the investment advisor; and
- Any material changes to the fund's investment objective or strategy.

We generally support amendments to a fund's investment advisory agreement absent a material change that is not in the best interests of shareholders. A significant increase in the fees paid to an investment advisor would be reason for us to consider recommending voting against a proposed amendment to an investment advisory agreement. However, in certain cases, we are more inclined to support an increase in advisory fees if such increases result from being performance-based rather than asset-based. Furthermore, we generally support sub-advisory agreements between a fund's advisor and sub-advisor, primarily because the fees received by the sub-advisor are paid by the advisor, and not by the fund.

In matters pertaining to a fund's investment objective or strategy, we believe shareholders are best served when a fund's objective or strategy closely resembles the investment discipline shareholders understood and selected when they initially bought into the fund. As such, we generally recommend voting against amendments to a fund's investment objective or strategy when the proposed changes would leave shareholders with stakes in a fund that is noticeably different than when originally purchased, and which could therefore potentially negatively impact some investors' diversification strategies.

REAL ESTATE INVESTMENT TRUSTS

The complex organizational, operational, tax and compliance requirements of Real Estate Investment Trusts ("REITs") provide for a unique shareholder evaluation. In simple terms, a REIT must have a minimum of 100 shareholders (the "100 Shareholder Test") and no more than 50% of the value of its shares can be held by five or fewer individuals (the "5/50 Test"). At least 75% of a REITs' assets must be in real estate, it must derive 75% of its gross income from rents or mortgage interest, and it must pay out 90% of its taxable earnings as dividends. In addition, as a publicly traded security listed on a stock exchange, a REIT must comply with the same general listing requirements as a publicly traded equity.

In order to comply with such requirements, REITs typically include percentage ownership limitations in their organizational documents, usually in the range of 5% to 10% of the REITs outstanding shares. Given the

complexities of REITs as an asset class, Glass Lewis applies a highly nuanced approach in our evaluation of REIT proposals, especially regarding changes in authorized share capital, including preferred stock.

PREFERRED STOCK ISSUANCES AT REITS

Glass Lewis is generally against the authorization of preferred shares that allows the board to determine the preferences, limitations and rights of the preferred shares (known as “blank-check preferred stock”). We believe that granting such broad discretion should be of concern to common shareholders, since blank-check preferred stock could be used as an antitakeover device or in some other fashion that adversely affects the voting power or financial interests of common shareholders. However, given the requirement that a REIT must distribute 90% of its net income annually, it is inhibited from retaining capital to make investments in its business. As such, we recognize that equity financing likely plays a key role in a REIT’s growth and creation of shareholder value. Moreover, shareholder concern regarding the use of preferred stock as an anti-takeover mechanism may be allayed by the fact that most REITs maintain ownership limitations in their certificates of incorporation. For these reasons, along with the fact that REITs typically do not engage in private placements of preferred stock (which result in the rights of common shareholders being adversely impacted), we may support requests to authorize shares of blank-check preferred stock at REITs.

BUSINESS DEVELOPMENT COMPANIES

Business Development Companies (“BDCs”) were created by the U.S. Congress in 1980; they are regulated under the Investment Company Act of 1940 and are taxed as regulated investment companies (“RICs”) under the Internal Revenue Code. BDCs typically operate as publicly traded private equity firms that invest in early stage to mature private companies as well as small public companies. BDCs realize operating income when their investments are sold off, and therefore maintain complex organizational, operational, tax and compliance requirements that are similar to those of REITs—the most evident of which is that BDCs must distribute at least 90% of their taxable earnings as dividends.

AUTHORIZATION TO SELL SHARES AT A PRICE BELOW NET ASSET VALUE

Considering that BDCs are required to distribute nearly all their earnings to shareholders, they sometimes need to offer additional shares of common stock in the public markets to finance operations and acquisitions. However, shareholder approval is required in order for a BDC to sell shares of common stock at a price below Net Asset Value (“NAV”). Glass Lewis evaluates these proposals using a case-by-case approach, but will recommend supporting such requests if the following conditions are met:

- The authorization to allow share issuances below NAV has an expiration date of one year or less from the date that shareholders approve the underlying proposal (i.e. the meeting date);
- The proposed discount below NAV is minimal (ideally no greater than 20%);
- The board specifies that the issuance will have a minimal or modest dilutive effect (ideally no greater than 25% of the company’s then-outstanding common stock prior to the issuance); and
- A majority of the company’s independent directors who do not have a financial interest in the issuance approve the sale.

In short, we believe BDCs should demonstrate a responsible approach to issuing shares below NAV, by proactively addressing shareholder concerns regarding the potential dilution of the requested share issuance, and explaining if and how the company’s past below-NAV share issuances have benefitted the company.

V.

Compensation, Environmental, Social and Governance Shareholder Initiatives

Glass Lewis generally believes decisions regarding day-to-day management and policy decisions, including those related to social, environmental or political issues, are best left to management and the board as they in almost all cases have more and better information about company strategy and risk. However, when there is a clear link between the subject of a shareholder proposal and value enhancement or risk mitigation, Glass Lewis will recommend in favor of a reasonable, well-crafted shareholder proposal where the company has failed to or inadequately addressed the issue.

We believe that shareholders should not attempt to micromanage a company, its businesses or its executives through the shareholder initiative process. Rather, we believe shareholders should use their influence to push for governance structures that protect shareholders and promote director accountability. Shareholders should then put in place a board they can trust to make informed decisions that are in the best interests of the business and its owners, and hold directors accountable for management and policy decisions through board elections. However, we recognize that support of appropriately crafted shareholder initiatives may at times serve to promote or protect shareholder value.

To this end, Glass Lewis evaluates shareholder proposals on a case-by-case basis. We generally recommend supporting shareholder proposals calling for the elimination of, as well as to require shareholder approval of, antitakeover devices such as poison pills and classified boards. We generally recommend supporting proposals likely to increase and/or protect shareholder value and also those that promote the furtherance of shareholder rights. In addition, we also generally recommend supporting proposals that promote director accountability and those that seek to improve compensation practices, especially those promoting a closer link between compensation and performance, as well as those that promote more and better disclosure of relevant risk factors where such disclosure is lacking or inadequate.

For a detailed review of our policies concerning compensation, environmental, social and governance shareholder initiatives, please refer to our comprehensive *Proxy Paper Guidelines for Shareholder Initiatives*, available at www.glasslewis.com.

DISCLAIMER

This document is intended to provide an overview of Glass Lewis' proxy voting policies and guidelines. It is not intended to be exhaustive and does not address all potential voting issues. Additionally, none of the information contained herein should be relied upon as investment advice. The content of this document has been developed based on Glass Lewis' experience with proxy voting and corporate governance issues, engagement with clients and issuers and review of relevant studies and surveys, and has not been tailored to any specific person.

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TAB 7 – OST Investment Operations Update
OPERF & Other OST-managed Accounts



Oregon State Treasury

INVESTMENT OPERATIONS

Improving data integrity and addressing operational risks

Dave Randall

Director of Investment Operations

June 2017

OVERVIEW

The bottom line: **Data accuracy, reporting and business intelligence are critical to successful investment decision-making.**

Blackrock's Aladdin tools and services, along with dedicated OST operational staff have allowed Investment Officers to focus more on informed decision-making rather than trade settlement, compliance and other non-investment related activities.

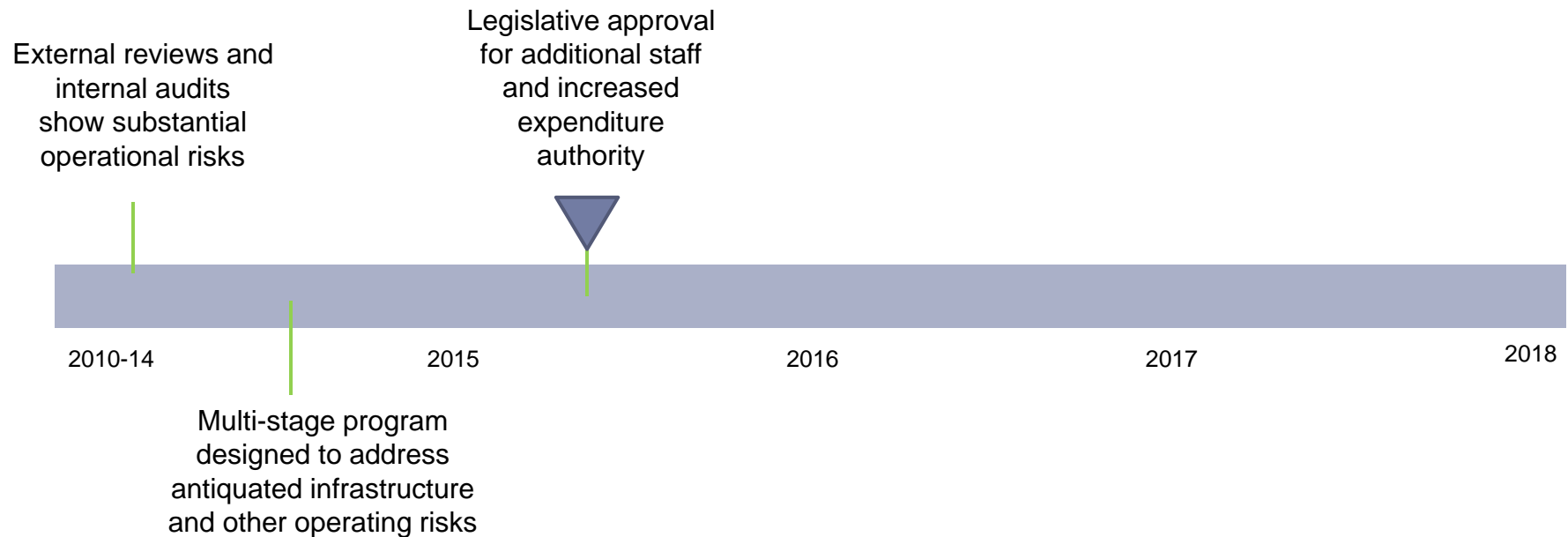
Despite our still limited staffing levels, OST has introduced and applied many operational improvements, including a more detailed reconciliation process that has identified significant performance reporting discrepancies totaling more \$800M .



BACKGROUND

THAT WAS THEN

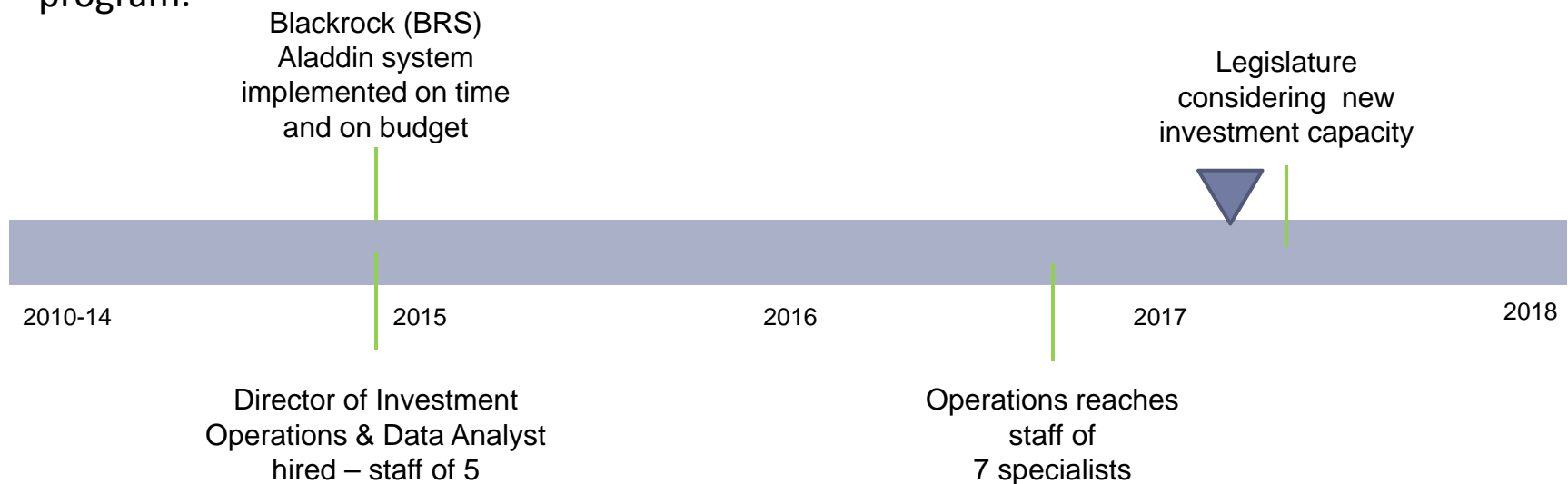
Internal audits and outside reviews (Cutter, Wilshire, Deloitte) determined that staffing, process, and technology limitations introduced unsustainable levels of investment and operating risk.



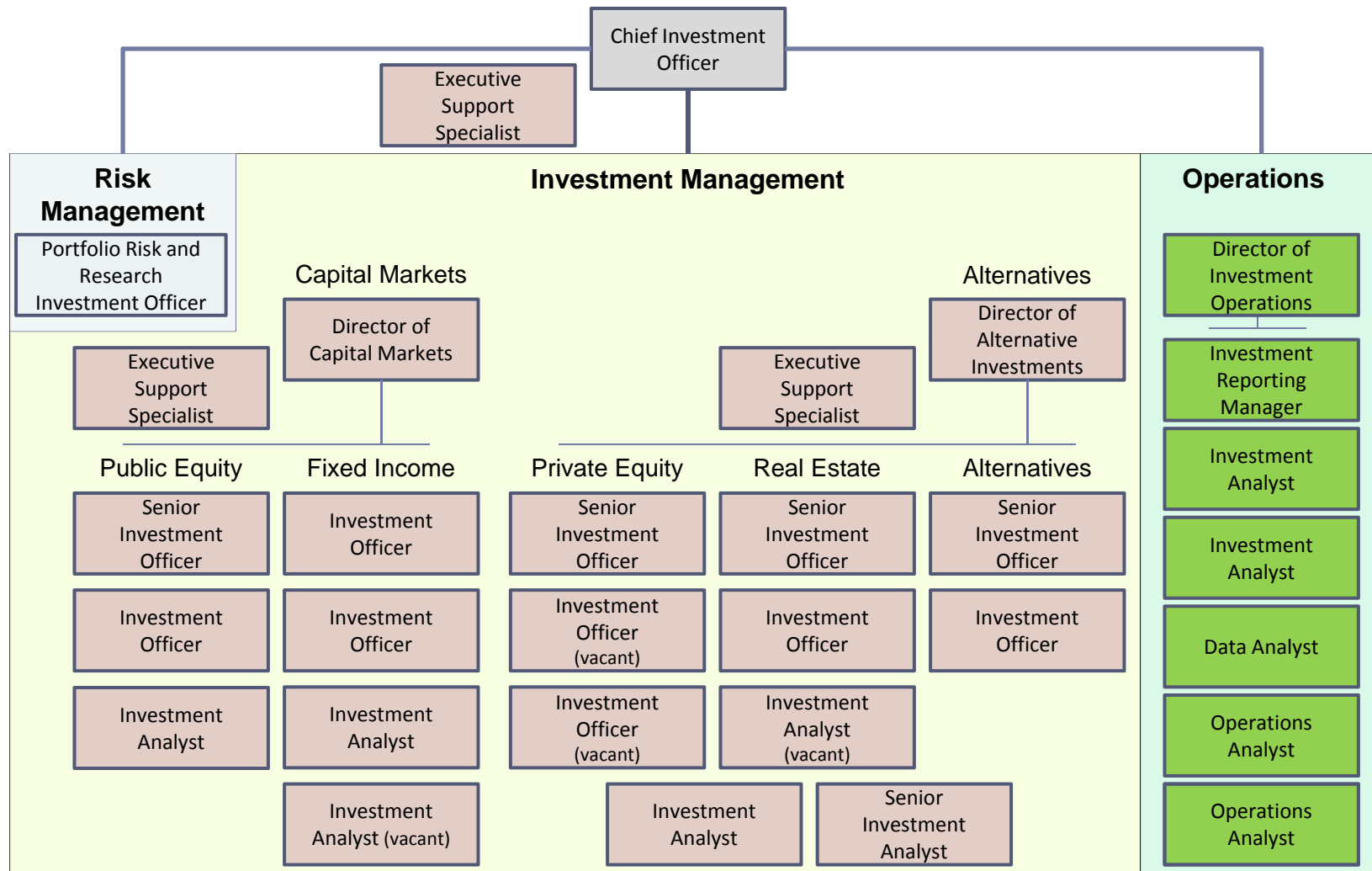
BACKGROUND

THIS IS NOW

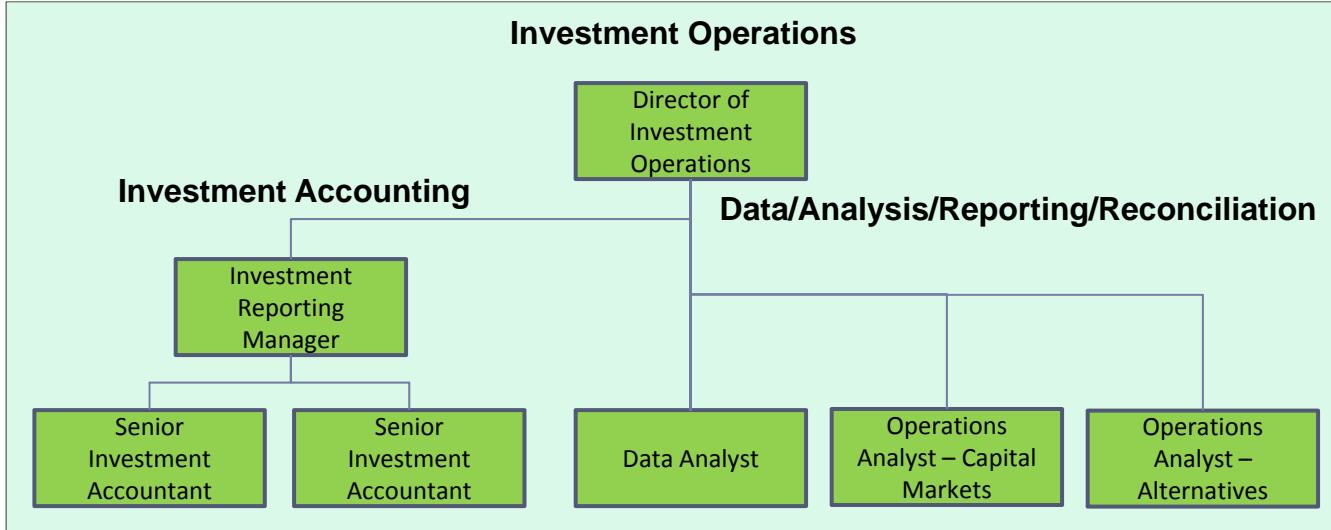
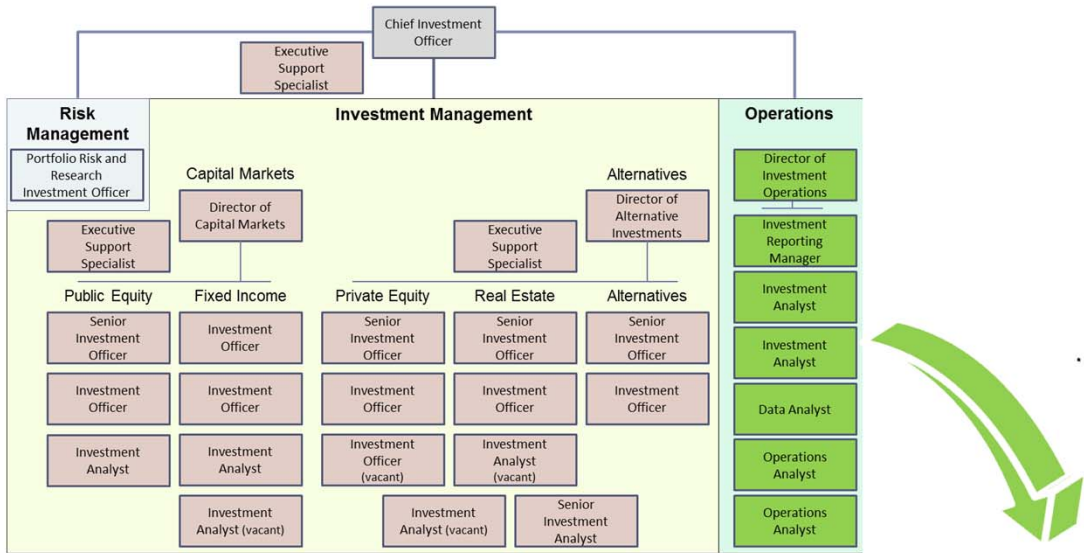
A multi-year business transformation that includes dedicated operational resources and utilization of the BlackRock Solutions (BRS) Aladdin tool and services platform. The Investment Operations Unit now comprises 7 FTE and supports Investment Accounting, Reporting, Reconciliation and Data Management for the State's \$94B investment program.



OST Investment Division Org Chart



INVESTMENT OPERATIONS



INVESTMENT OPERATIONS

Investment Accounting

- Cash Management
- Portfolio Administration
- Financial Reporting
- Expense Review

Reporting

- Public Reporting
- Web Updates
- Oregon Investment Council Reporting
- PERS Reporting
- Internal Reporting

Investment Operations

Data Management/Analysis

- Data Integrity
- Security Master
- Security Characteristics
- Analytics

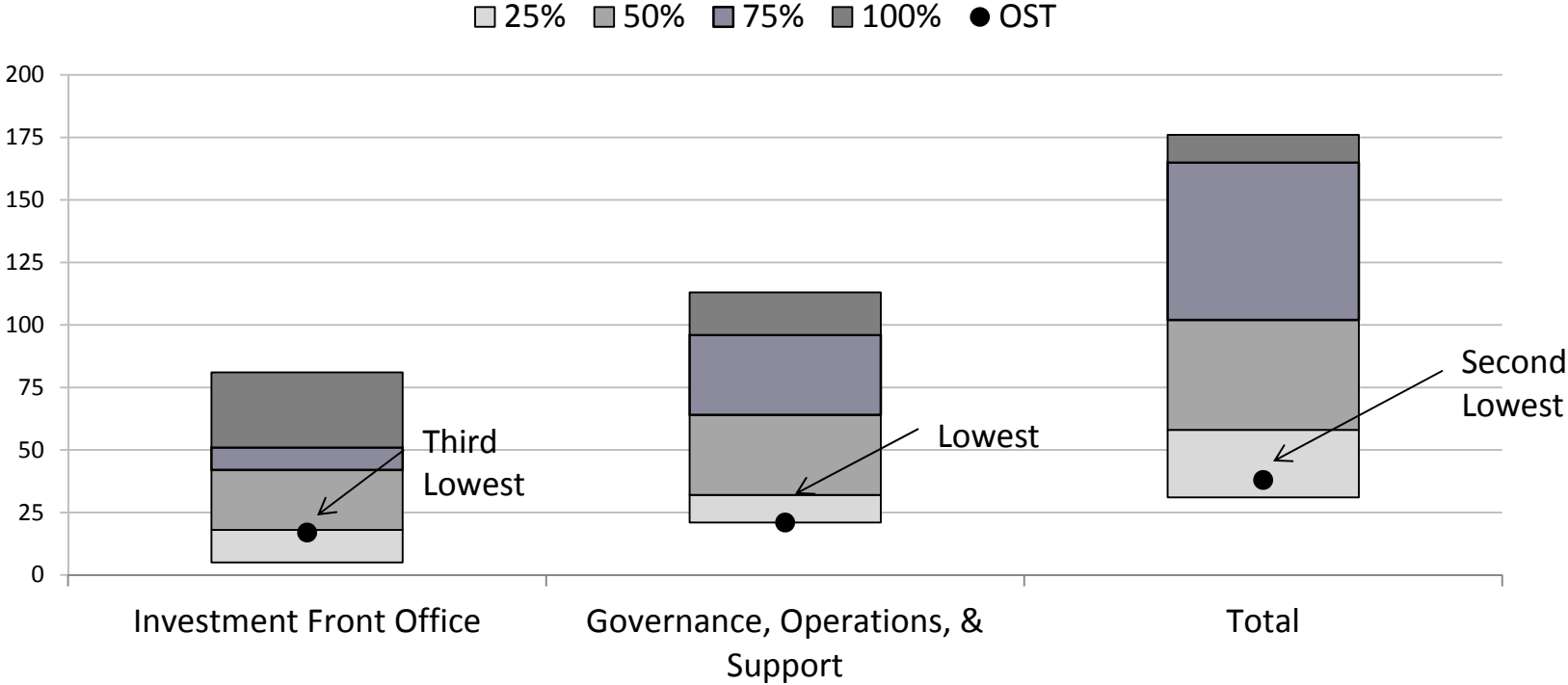
Reconciliation

- Investment Book of Record
- Accounting Book of Record
- Investment Manager Data
- Consultant Data
- Custodial Data



BUILDING CAPACITY

OST staff levels lag, compared to peers











Rankings based on custom peer group of 13 global asset owners of similar size and portfolio composition.

Source: CEM Benchmarking, November 2016 report.



BUILDING CAPACITY

Operations	
Performance Analysis and Reporting	
Investment Accounting	
Investment Expense Management	
Data Management & Governance	
Trade Support/Settlement	
Operational Risk Management	

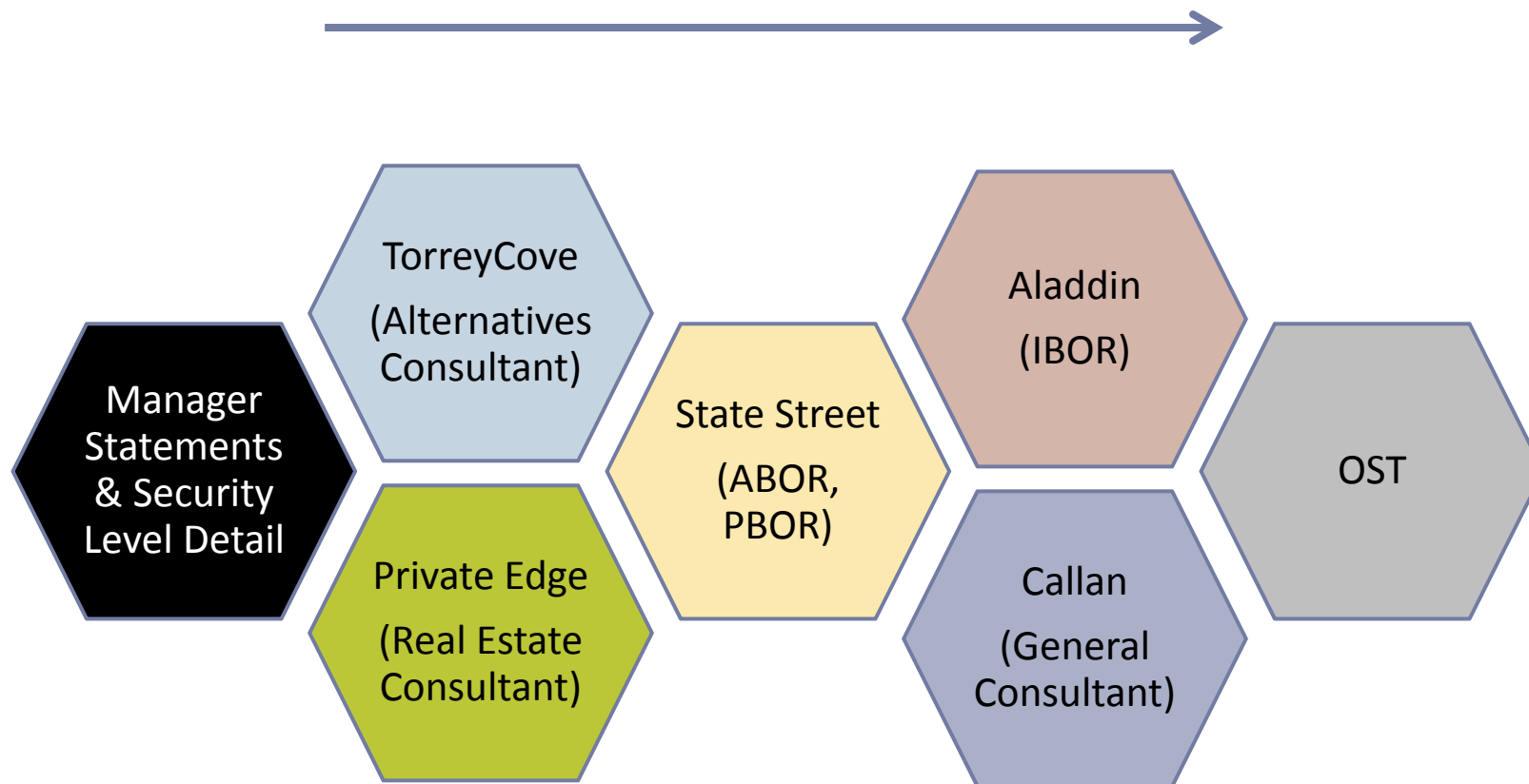
Oregon	
Peer Group	

Source: Cutter Associates Public Funds Resource Allocation Peer Group Study.
 Note: Peer group numbers reflect peer group average.



IMPROVING DATA RELIABILITY

Valuation and Performance Data Flow



Reconciliation Issue Log

Date Discovered	Report Date	Report	Account Impacted	Plan/Fund	Summary	Root Cause Memo Provided
Jan-16	Jan-16	ART	59XX	OSTF	Cash was not cleared from OSTF	YES
May-16	Jan-16	ART	59XX	OITIP	An individual cash security performance was overstated	YES
Mar-16	Mar-16	ART	59XX	OPERF/Alts	Alternatives Portfolio - Stop the Clock Performance not use for a liquid alts fund	YES
Jun-16	Jun-16	ART	59XX	OPERF/Private Eq	Private Equity Fund - Data Error - Wrong # entered	YES
Jun-16	Jun-16	ART	59XX	CSF/Private Eq	Private Equity Fund - Data Error - Wrong # entered	YES
Aug-16	Jun-16	ART	59XX	OPERF/Private Eq	Private Equity Fund - Accounting Value did not match performance value for one of the funds	YES
Sep-16	Dec-15	ART	59XX	OPERF/Private Eq	Real Estate Portfolio - Accounting Value did not match performance value for one of the funds	YES
Dec-16	Dec-16	ART	59XX	OPERF/Index Fund	Index Fund - \$600M Cash flow not accounted for. Explanation was that prelim report was sent in error	YES
Dec-16	Dec-16	ART	59XX	OPERF/Alts/PE Fund	Private Equity Fund - used 6/30 instead of 9/30 manager statement	YES
Feb 2017 - Pending	Dec-16	ART	59XX	OPERF/Private Eq	Incorrect Returns Used for Private Equity 2016 TUCS peer rankings	YES
Feb 2017 - Pending	Dec-16	TUCS	OPERF	OPERF	Multiple Index Changes not reflected for various asset classes	Pending
Feb 2017 - Pending	Dec-16	TUCS	59XX	OPERF/REITS	Real Estate Returns were reflected instead of REITS Returns for the peer group rankings	Pending
Feb 2017 - Pending	Jan-17	ART	59XX	OPERF	Difference in report and plan accounting valuations Unreconciled balances with 4 funds	Pending
Feb 2017 - Pending	Jan-17	ART	59XX	OSTF	Difference in report and plan accounting valuation - issue with the price of cusp 928XXXXXX (OLGIF position)	Pending

For Illustrative Purposes

IMPROVING DATA RELIABILITY

Centralized Reporting

Oregon Intermediate Term Pool

March 31, 2017

Fund Characteristics

Net Assets: \$16,139,737,532

Oregon Short Term Fund

March 31, 2017

Fund Characteristics

Net Assets: \$16,139,737,532

Oregon Public Employee Retirement Fund

December 31, 2016

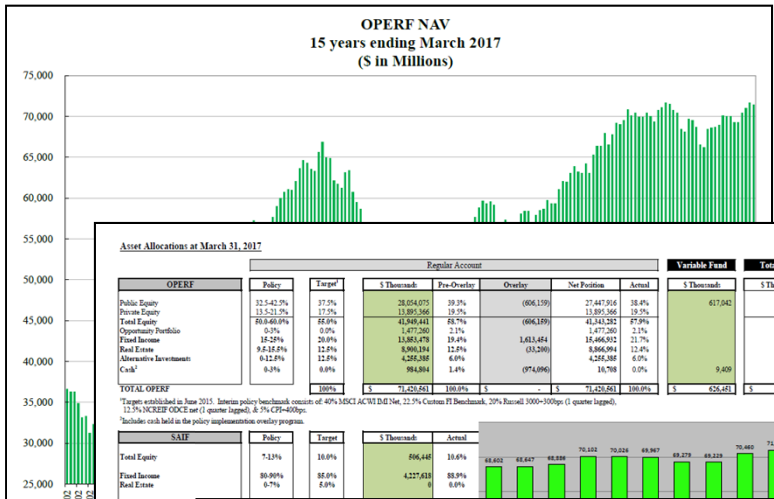
Asset Allocation (\$Millions)

Alternative:	\$4,034
Cash:	\$1,588
Domestic Equity:	\$13,235
International Equity:	\$11,406
Real Estate:	\$8,663
Fixed Income:	\$13,687
Opportunity:	\$1,473
Private Equity:	\$13,874

Size Rank	Asset Manager	Market Value (\$Millions)	Market Value Weight	Asset Class
1	Internally-Managed	6,672	9.55%	Cash, Pub Eqty
2	DFA	4,971	7.12%	Pub Eqty
3	BlackRock	3,788	5.42%	Fxd Inc, Pub Eqty
4	Alliance Bernstein	3,672	5.26%	Fxd Inc, Pub Eqty
5	Wellington	3,307	4.73%	Fxd Inc, Pub Eqty
6	KKR	3,156	4.52%	Fxd Inc, Pub Eqty
7	Western Asset	2,816	4.03%	Fxd Inc
8	AQR	2,557	3.65%	Alts, Pub Eqty
9	Arrowstreet Capital	1,641	2.35%	Pub Eqty
10	Lazard	1,441	2.06%	Pub Eqty

Annualized Asset Class Performance (%)

Ten-Year Risk Analysis vs Large Public Funds (~108)



Asset Allocation at March 31, 2017

OPERF	Policy		Target		Regular Account		Variable Fund		Total Fund	
	%	\$	%	\$	%	\$	%	\$		
Public Equity	32.5-42.2%		37.5%		28,054,075	39.3%	(806,139)	27,447,936	38.4%	28,064,938
Private Equity	13.5-21.5%		17.5%		13,893,566	19.5%		13,893,566	19.5%	13,893,566
Total Equity	60.0-60.0%		55.0%		41,947,641	58.8%	(806,139)	41,141,502	57.9%	41,968,504
Opportunity Portfolio	0.0%		0.0%		1,477,260	2.1%		1,477,260	2.1%	1,477,260
Fixed Income	16.2-20%		20.0%		13,880,479	19.4%		13,880,479	19.4%	13,880,479
Real Estate	9.5-18.5%		12.5%		8,960,134	12.6%	(33,200)	8,866,934	12.4%	8,866,934
Alternative Investment	0.0%		0.0%		4,258,388	6.0%		4,258,388	6.0%	4,258,388
Cash	0.0%		0.0%		88,684	0.1%	(974,096)	16,780	0.0%	20,117
TOTAL OPERF	100%	\$ 71,201,611	100%	\$ 71,201,611	100.0%	\$ 71,201,611	100.0%	\$ 65,424,411	91.9%	\$ 71,201,611

Returns for periods ending FEB-2017

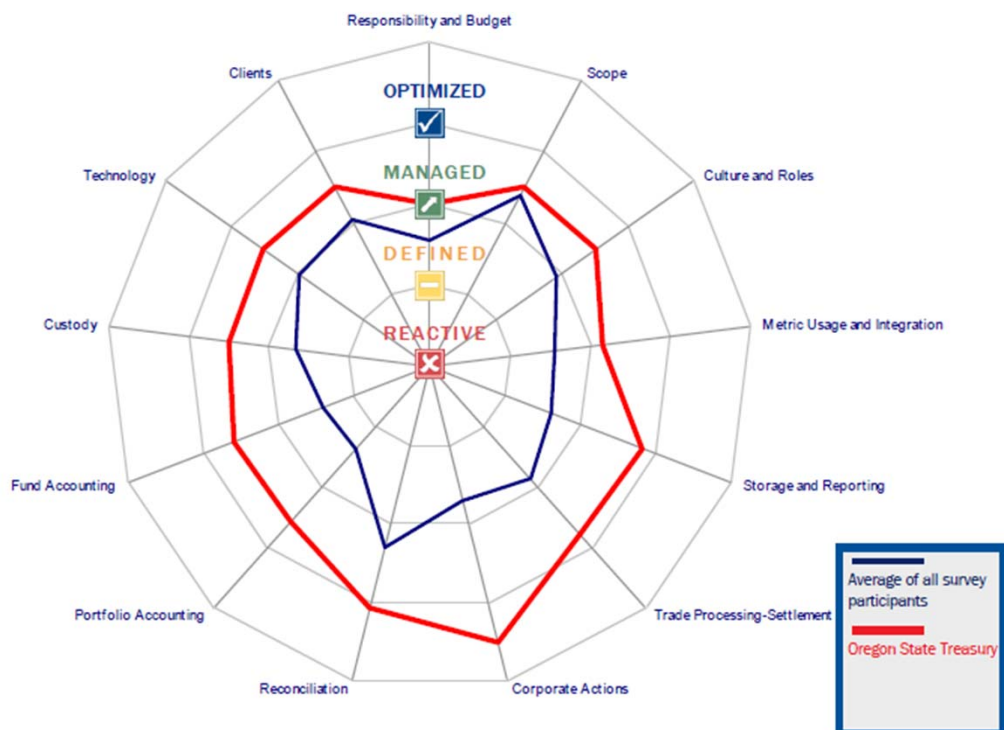
Oregon Public Employees Retirement Fund

OPERF	Policy		Target		Regular Account		Biennial Performance (Annual Percentage)									
	%	\$	%	\$	%	\$	Year-1	2	3	4	5	7	10			
Public Equity	32.5-42.2%		37.5%		\$ 27,610,451	38.9%	5.24	24.11	4.45	5.96	9.83	9.30	9.68	4.66		
Private Equity	13.5-21.5%		17.5%		\$ 13,755,572	19.4%	(0.10)	6.08	6.84	9.84	11.40	11.99	12.48	9.00		
Total Equity	55.0-60.0%		55.0%		\$ 41,416,023	58.4%	1.09	19.97	1.75	2.22	2.18	3.28	4.81	5.22		
Opportunity Portfolio	0.0%		0%		\$ 1,462,727	2.1%	(0.33)	4.46	2.48	3.84	6.50	8.39	8.32	6.52		
Total Fixed	16-25%		20.0%		\$ 15,386,343	21.7%	1.09	1.97	1.75	2.22	2.18	3.28	4.81	5.22		
Real Estate	9.5-18.5%		12.5%		\$ 8,615,689	12.1%	0.85	6.65	8.37	10.14	10.93	11.19	9.98	6.09		
Alternative Investment	0-12.5%		12.5%		\$ 4,092,966	5.8%	0.33	6.12	4.07	1.97	3.22	2.42				
Cash w/Overlay	0.0%		0%		\$ 6,520	0.0%	0.26	1.27	0.89	0.77	0.75	0.82	0.78	1.18		
TOTAL OPERF Regular Account	100.0%	\$ 70,995,517	100.0%	\$ 70,995,517	100.0%	2.33	12.49	4.60	5.87	7.92	8.52	9.06	5.62			
OPERF Policy Benchmark						2.49	14.69	5.53	6.88	8.58	9.39	9.40	6.13			
Value Added						(0.16)	(2.20)	(0.93)	(1.01)	(0.66)	(0.37)	(0.35)	(0.51)			
TOTAL OPERF Variable Account					\$ 426,783	5.57	22.82	4.85	6.36	8.50	8.81	9.31	2.74			



IMPROVING DATA RELIABILITY

Operational Metrics Peer Comparison



Throughout the Operations Metrics study Oregon State Treasury has been assigned the letter P which will appear highlighted with red text.

- OPTIMIZED
- MANAGED
- DEFINED
- REACTIVE

P
 Firm letter assigned to Oregon State Treasury

2nd out of 21
 Oregon State Treasury's ranking for the overall study

Firm Letter	Rank	Total Survey Score	Category		
			Organization	Process	Operations Domains
S	1	3.5	3.5	3.2	3.7
P	2	3.0	2.8	3.0	3.2
J	3	3.0	3.2	3.2	2.7
C	4	3.0	3.2	2.7	3.0
O	5	2.7	3.0	2.7	2.6
B	6	2.7	2.1	3.0	2.9
D	7	2.7	3.0	2.5	2.5
T	8	2.6	3.1	2.7	2.1
E	9	2.6	2.7	2.3	2.6
N	10	2.4	2.8	1.8	2.5
G	11	2.3	2.8	2.3	2.0
Average *		2.3	2.4	2.1	2.3
K	12	2.3	2.3	2.0	2.5
			2.4	1.7	2.6
			2.5	1.2	2.4
			3.0	1.5	1.5
			1.8	1.7	2.1
			2.2	1.8	1.7
			1.5	1.3	2.0
			1.3	1.3	1.5
			1.0	1.2	1.2
			1.0	1.0	1.2



Accomplishments

THIS IS NOW

- ▶ Data Integrity
- ▶ Resource Optimization
- ▶ Centralized data management, reconciliation and reporting
- ▶ Improved information flow, risk mitigation and accountability
- ▶ Strong initial ranking among peers for operational oversight, but room for improvement
- ▶ Scalable infrastructure of Aladdin allows for better resource allocation, control and efficiency
- ▶ State Street
 - ▶ Onsite Rep
 - ▶ Automated Reporting
 - ▶ Revamped KPIs
 - ▶ Enhanced Reporting
 - ▶ Root cause analysis





Oregon Investment Council

▶ BlackRock Solutions

▶ June 7, 2017



BLACKROCK®

For professional clients / qualified investors only

Relationship Summary

BlackRock Solutions (BRS) and OST have enjoyed a solid partnership

- ▶ OST has shown great adoption of the Aladdin toolset to perform many key investment functions
- ▶ Aladdin Peer Analysis shows OST utilizes a greater percent of the features within the tools than its peers
- ▶ OST has leveraged Aladdin to increase its management of internal assets

OST Metrics

- ▶ Internal Management AUM on Aladdin has grown from \$18 Billion to \$23 Billion
- ▶ Over 2,000 Trades in Q1 2017 booked into Aladdin
- ▶ About 400 Compliance rules coded on its portfolios
- ▶ OST processed around 800 Corporate Actions in Aladdin during Q1 2017
- ▶ Cash & Positions Reconciliation performed daily in Aladdin vs. State Street

New Aladdin Usage Metrics will help identify focus areas for increased application of Aladdin

- ▶ Ability to identify users with lower usage statistics (e.g., investment tools) and determine if additional training / focus from BRS is needed
- ▶ Potential to compare OST with your peer groups and identify business process review opportunities in order to streamline workflows or increase STP

Establishing focus areas is important to our partnership

- ▶ We want to ensure we understand OST strategic initiatives and priorities to ensure we focus on implementing the right Aladdin functionality

BlackRock Solutions Support Structure

OST Users

Relationship Management	Client Analytics Group	Aladdin Client Services	Aladdin Product Group
<ul style="list-style-type: none">• Primary point of contact for overall client relationship• Work with OST to determine, prioritize, and execute strategic initiatives• Provide oversight and serve as escalation point on all client requests and deliverables	<ul style="list-style-type: none">• Partner with OST professionals to maximize usage and understanding of Aladdin risk capabilities• Deep tool, model and analytics expertise• Provide thought leadership on risk and model components that drive customized reporting deliverables	<ul style="list-style-type: none">• Additive resources around the globe to maximize our support of your business• Established team for supporting maintenance and inquiries related to operational functions such as compliance, reporting and Aladdin tools• Ensures questions are answered quickly and accurately	<ul style="list-style-type: none">• Dedicated team responsible for guiding the Aladdin product from conception to launch• Product Managers work in partnership with stakeholders to create the product vision and enhance the Aladdin value proposition for its users• Prioritize evolution and improvement of Aladdin

Working together to provide differentiated service

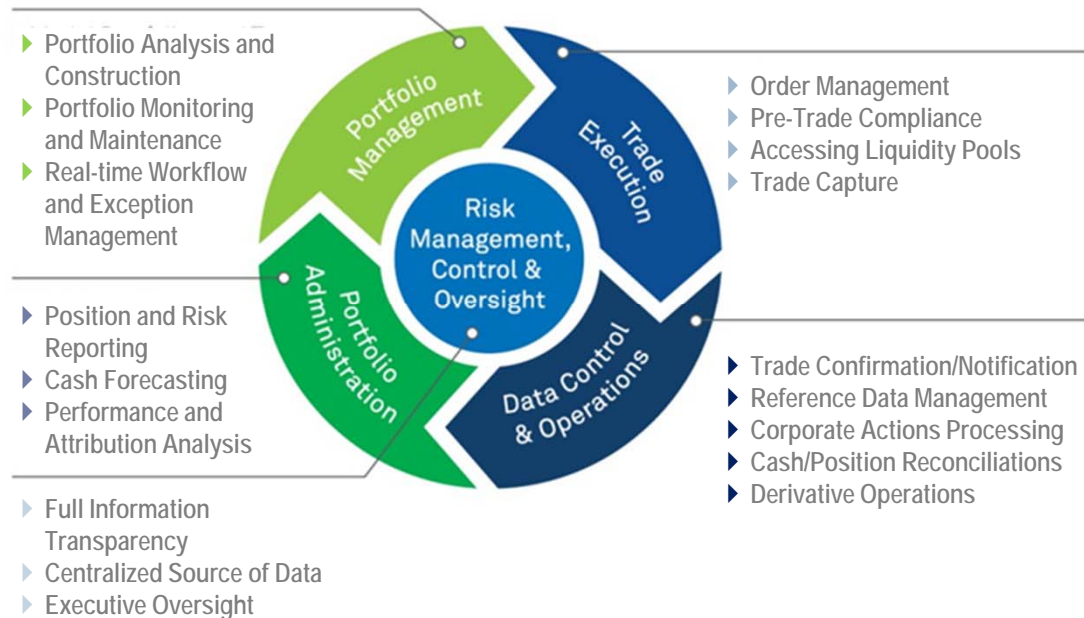
- **Highest levels of client service – act as members of client in-house teams**
- **Deliver scale, efficiency, and consistency**
- **Clients focus on core business responsibilities, not systems**

Aladdin Overview

Aladdin combines sophisticated risk, exposure and performance analyses with comprehensive portfolio management, trading, compliance and operations tools on a single platform

- ▶ Single version of Aladdin used by OST staff, BlackRock Trade Support Teams, and BlackRock Client Solutions Team
 - Flexible and configurable to support OST as an organization

Integration of people, processes and systems through one centralized platform and database



OST is leveraging the Aladdin Tools to perform the following functions

Portfolio Management & Trading

- Daily risk exposure reporting
- Pre-trade analytics
- Order modeling & allocation
- Automated rebalancing
- Order management
- Trade execution & capture
- Real-time risk & cash reporting

Compliance

- Integrated into the order/trade process
- Real-time compliance monitoring
- Daily exposure limit monitoring
- Historical tracking

Security Data Management

- Spans all product types
- Full audit trail
- Access to multiple sources of data

Operations

- Trade confirmation & routing
- Fail/settlement tracking
- Cash & position reconciliation
- Corporate action processing
- Payment processing
- Derivative documentation
- Collateral management
- Variation margin processing
- Operations/data reporting

Communication with Third Parties

- Brokers
- Electronic Trading Platforms
- FIX
- SWIFT
- Omgeo OASYS/CTM
- Custodians

Risk Management

- Ability to view risk from individual security to enterprise level
- Value-at-risk, tracking error, stress testing

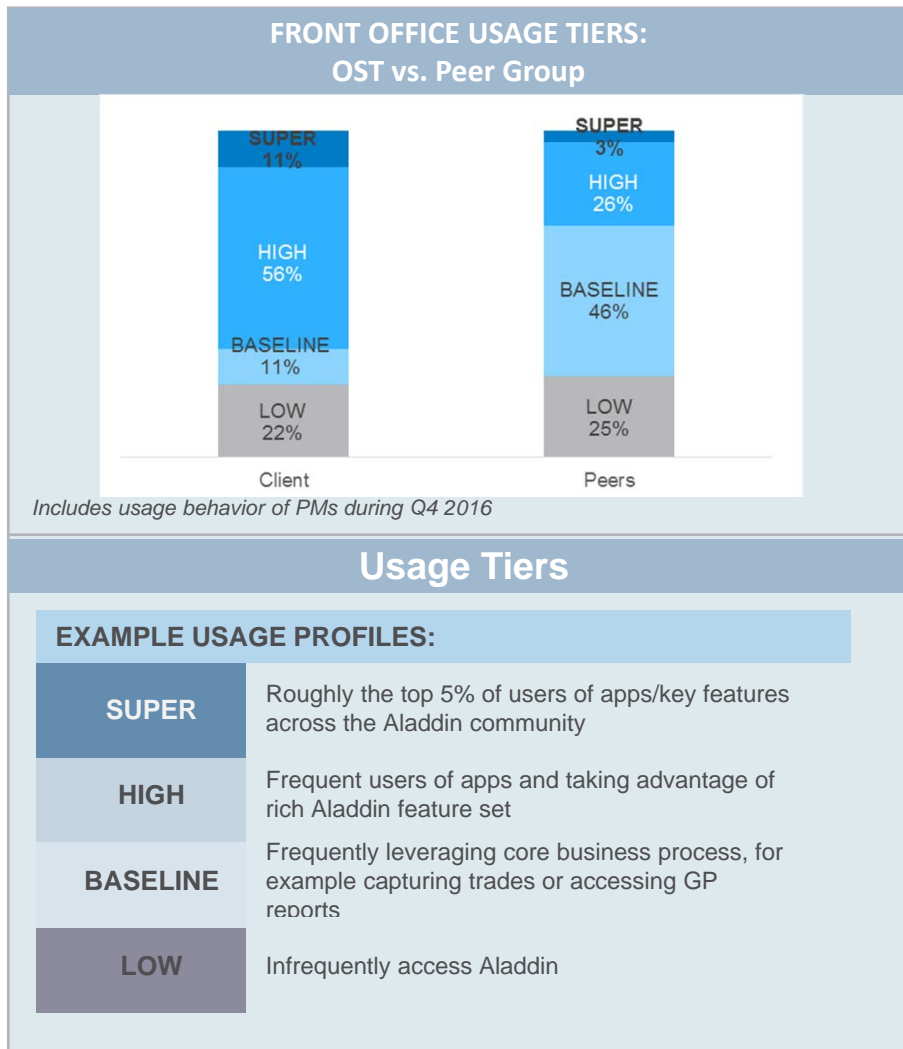
Performance

- Analytics returns
- Performance attribution

Reporting Tools

- Online access to:
 - Transactions & positions
 - Security indicative data & prices
 - Risk
 - Fails & matching
 - Compliance
 - New cash

Aladdin Metrics: Portfolio Manager and Trader Usage Profile

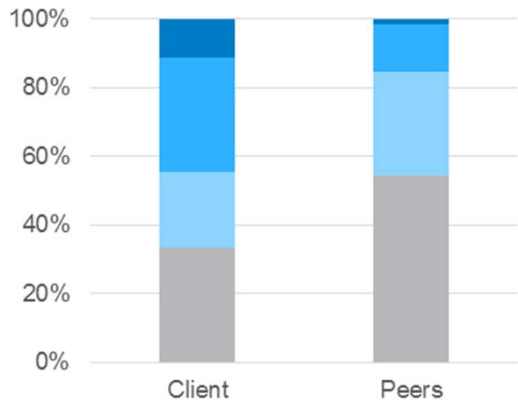


- ▶ BRS can compare usage against peers to identify who is utilizing the various tools and assign users into example usage profiles
- ▶ OST Front Office teams are highly leveraging Aladdin’s capabilities for raising orders, understanding cash balances, analyzing securities, and addressing reporting requirements
- ▶ OST has 67% of its users in the Super or High usage profile, significantly higher than its peer group
- ▶ Users in the low and baseline bucket represent an opportunity for BRS to reengage and reintroduce tools that could be utilized in their day-to-day usage of Aladdin

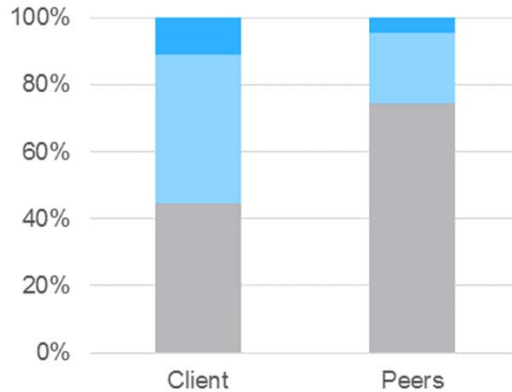
Observation period is Q4 2016

Aladdin Metrics: Aladdin PM Tool-specific Usage Profile

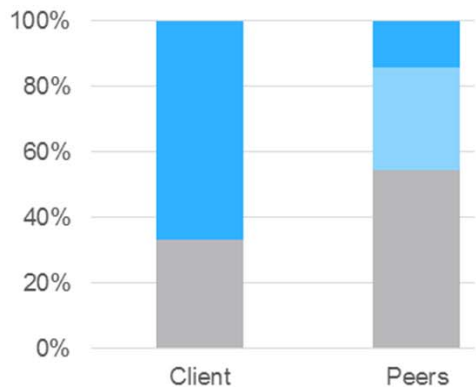
PortfolioConstruction 



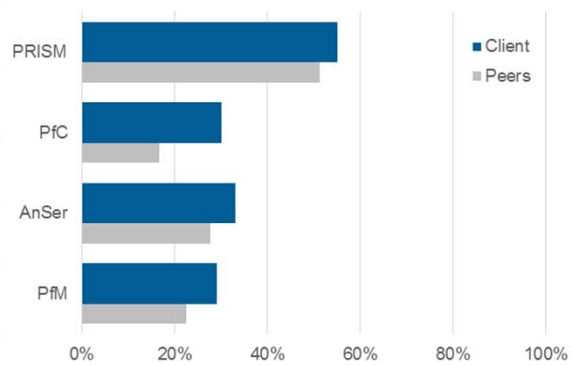
PortfolioMonitor 



Prism 



Breadth of Usage



- ▶ BRS can analyze by Aladdin Tool where users stand in comparison to their peer usage profile
- ▶ OST is strongly leveraging the Aladdin portfolio management tools, with more users falling into Super or High Usage profile compared to peers
- ▶ OST demonstrates high usage of Portfolio Construction, reflecting broad adoption of the order management workflow
- ▶ OST heavily utilizes Portfolio Monitor for cash management
- ▶ OST is utilizing PRISM to support performance reporting and portfolio analysis
- ▶ Data shows OST utilizes a greater percent of the features within the tools than its peers – it is getting the most out of Aladdin



Observation period is Q4 2016

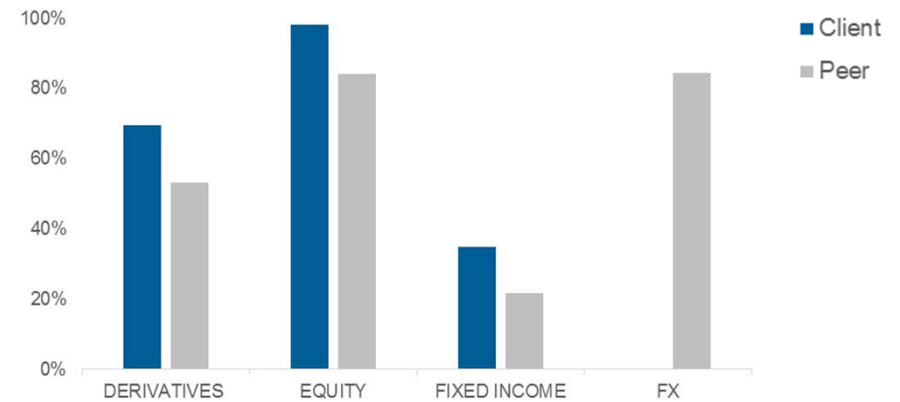
Aladdin Metrics: Aladdin Order Workflow Peer Comparison

Order Workflow Usage vs Peers



Includes orders entered Q4 2016

Order Workflow Asset Class Breakdown



Includes orders entered Q4 2016

- ▶ The order-based workflow is considered best practice:
 - Incorporates pre-trade compliance in Aladdin prior to execution
 - Minimizes dual-keying and reduces operational risk of entering incorrect trade terms
 - Allows risk and exposure to be monitored against expected portfolio positioning
 - Reflects accurate real-time picture of outstanding orders and trade execution status
- ▶ OST is utilizing the order workflow more than its peers
- ▶ OST plans to start trading FX utilizing the Aladdin order workflow – expected increase to 100% order usage for FX

Emerging Market & Client Industry Themes

As markets and the regulatory environment evolve, we are working with our clients to solve leading edge industry and client-specific investment and risk management challenges

Investment Trends

- ▶ The extremely negative outlook on retail (i.e. Target, Nordstrom, Macys, etc) has led our clients to get more engaged in CMBS and CMBX to make bets or hedge against what could potentially happen to the retail sector and the corresponding leases attached to them
- ▶ Leveraging our CMBS 2.0 model, Aladdin can help users to evaluate the properties included in deals and zoom in on a deal that may have heavy exposure to struggling retailers

ESG Data

- ▶ Growing demand and greater opportunity for investment solutions that target positive social and environmental change along with financial return
- ▶ BRS is building infrastructure to integrate MSCI's environmental, social, and governance (ESG) data into the Aladdin suite of portfolio management and risk reporting tools
- ▶ ESG data will be available in a phased approach, with interactive Prism reporting available now

Factor Based Investing

- ▶ Aladdin Factor Workbench (AFW) is an analytical platform that reframes asset allocation, portfolio analysis and manager selection along the factor dimensions that drive portfolio returns
- ▶ Tool is intended to help users think about asset allocation through a macro factor lens
- ▶ Macro factors are also integrated within Portfolio Risk Tools (PRT)



Next Steps

FUTURE OPPORTUNITES

- ▶ Document Established Policies & Procedures
- ▶ Expand Aladdin Use and Expertise
- ▶ Optimize Operational Resource Allocation
- ▶ Capital Markets/Alternatives
- ▶ Reporting/Reconciliation/Data Management & Analytics
- ▶ Improve Fee Monitoring and Transparency
- ▶ Extend Reconciliation Efforts
- ▶ Enhance Reporting Activities

2017

2018

2019

2020

2021





Oregon State Treasury

Tobias Read, State Treasurer



www.Oregon.gov/Treasury



Oregon.Treasurer@ost.state.or.us



503-378-4329



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TAB 8 – Asset Allocations & NAV Updates

Asset Allocations at April 30, 2017

Regular Account							Variable Fund	Total Fund	
OPERF	Policy	Target ¹	\$ Thousands	Pre-Overlay	Overlay	Net Position	Actual	\$ Thousands	\$ Thousands
Public Equity	32.5-42.5%	37.5%	28,513,004	39.5%	(593,524)	27,919,480	38.6%	627,304	28,546,784
Private Equity	13.5-21.5%	17.5%	13,978,395	19.3%		13,978,395	19.3%		13,978,395
Total Equity	50.0-60.0%	55.0%	42,491,399	58.8%	(593,524)	41,897,875	58.0%		42,525,179
Opportunity Portfolio	0-3%	0.0%	1,490,489	2.1%		1,490,489	2.1%		1,490,489
Fixed Income	15-25%	20.0%	13,950,786	19.3%	1,754,292	15,705,078	21.7%		15,705,078
Real Estate	9.5-15.5%	12.5%	8,927,147	12.4%	(30,600)	8,896,547	12.3%		8,896,547
Alternative Investments	0-12.5%	12.5%	4,262,512	5.9%		4,262,512	5.9%		4,262,512
Cash²	0-3%	0.0%	1,136,548	1.6%	(1,130,168)	6,379	0.0%		8,791
TOTAL OPERF		100%	\$ 72,258,881	100.0%	\$ -	\$ 72,258,881	100.0%		\$ 629,715

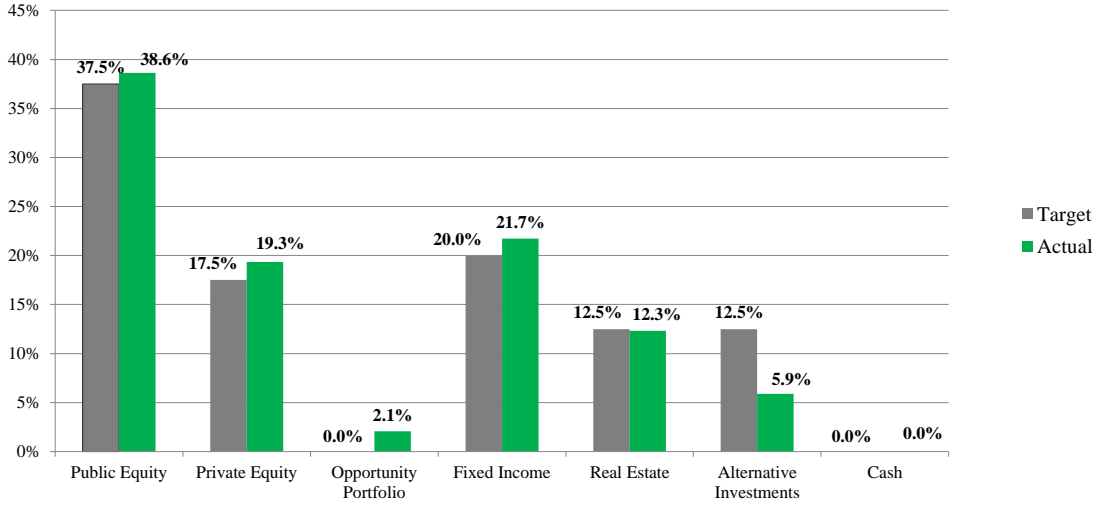
¹Targets established in June 2015. Interim policy benchmark consists of: 40% MSCI ACWI IMI Net, 22.5% Custom FI Benchmark, 20% Russell 3000+300bps (1 quarter lagged), 12.5% NCREIF ODCE net (1 quarter lagged), & 5% CPI+400bps.

²Includes cash held in the policy implementation overlay program.

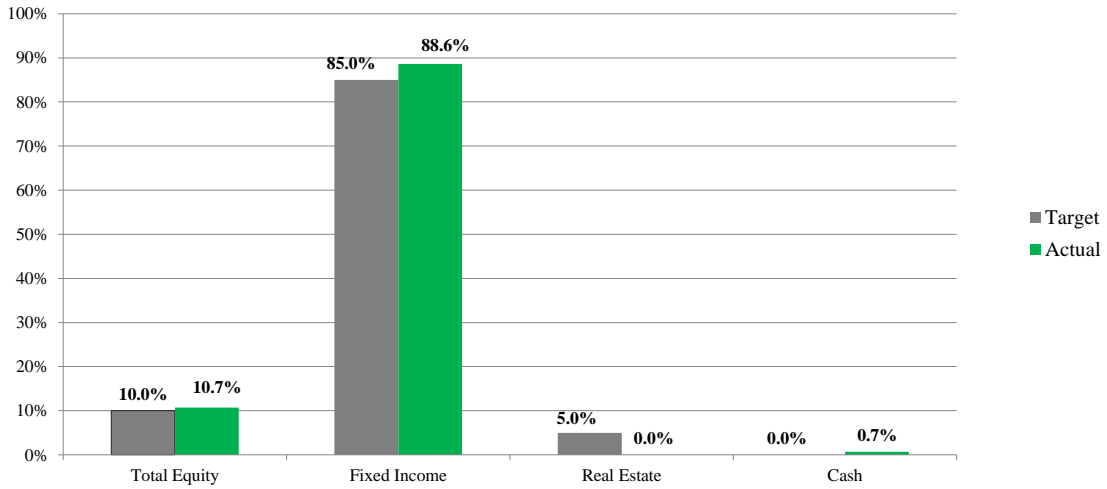
SAIF	Policy	Target	\$ Thousands	Actual
Total Equity	7-13%	10.0%	514,726	10.7%
Fixed Income	80-90%	85.0%	4,268,272	88.6%
Real Estate	0-7%	5.0%	0	0.0%
Cash	0-3%	0%	33,166	0.7%
TOTAL SAIF			\$ 4,816,164	100.0%

CSF	Policy	Target	\$ Thousands	Actual
Domestic Equities	25-35%	30%	467,434	30.2%
International Equities	25-35%	30%	445,377	28.8%
Private Equity	0-12%	10%	188,761	12.2%
Total Equity	65-75%	70%	1,101,572	71.3%
Fixed Income	25-35%	30%	436,853	28.3%
Cash	0-3%	0%	7,626	0.5%
TOTAL CSF			\$ 1,546,051	100.0%

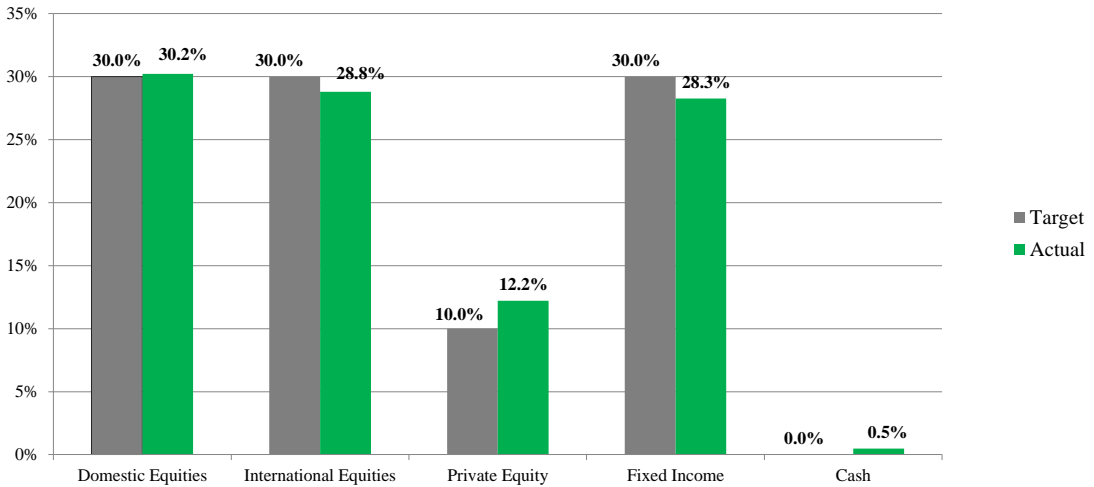
OPERF Asset Allocation



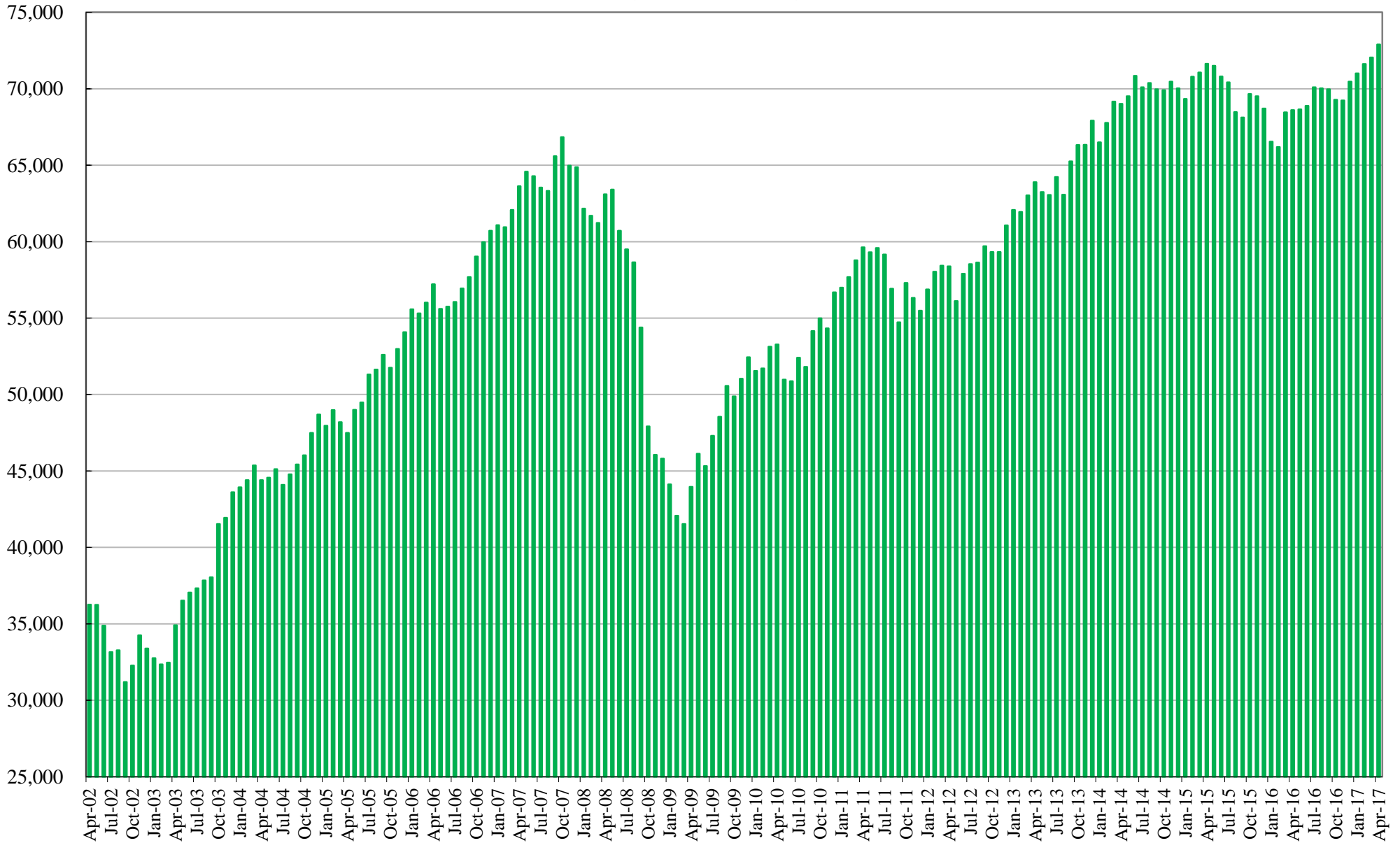
SAIF Asset Allocation



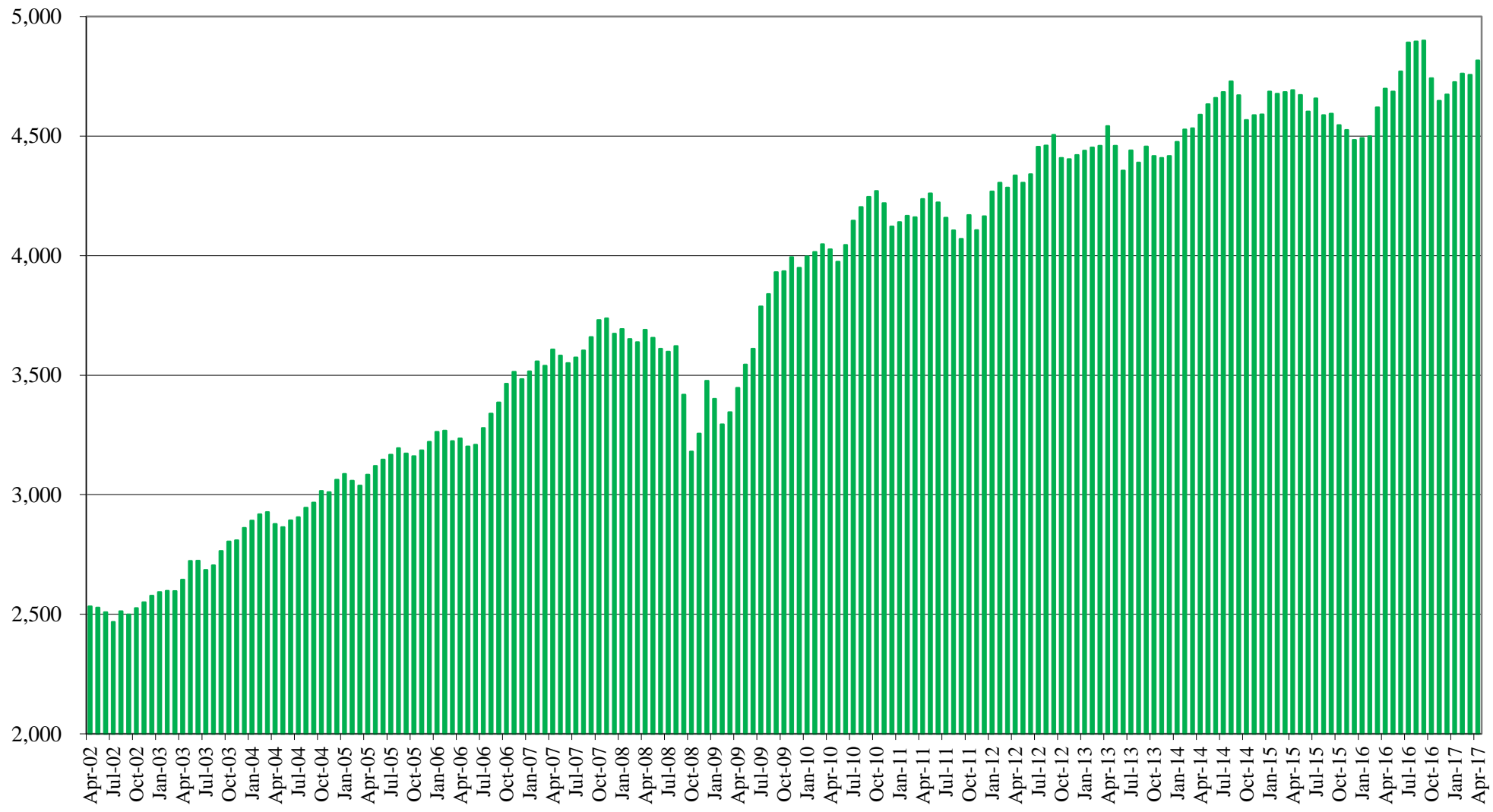
CSF Asset Allocation



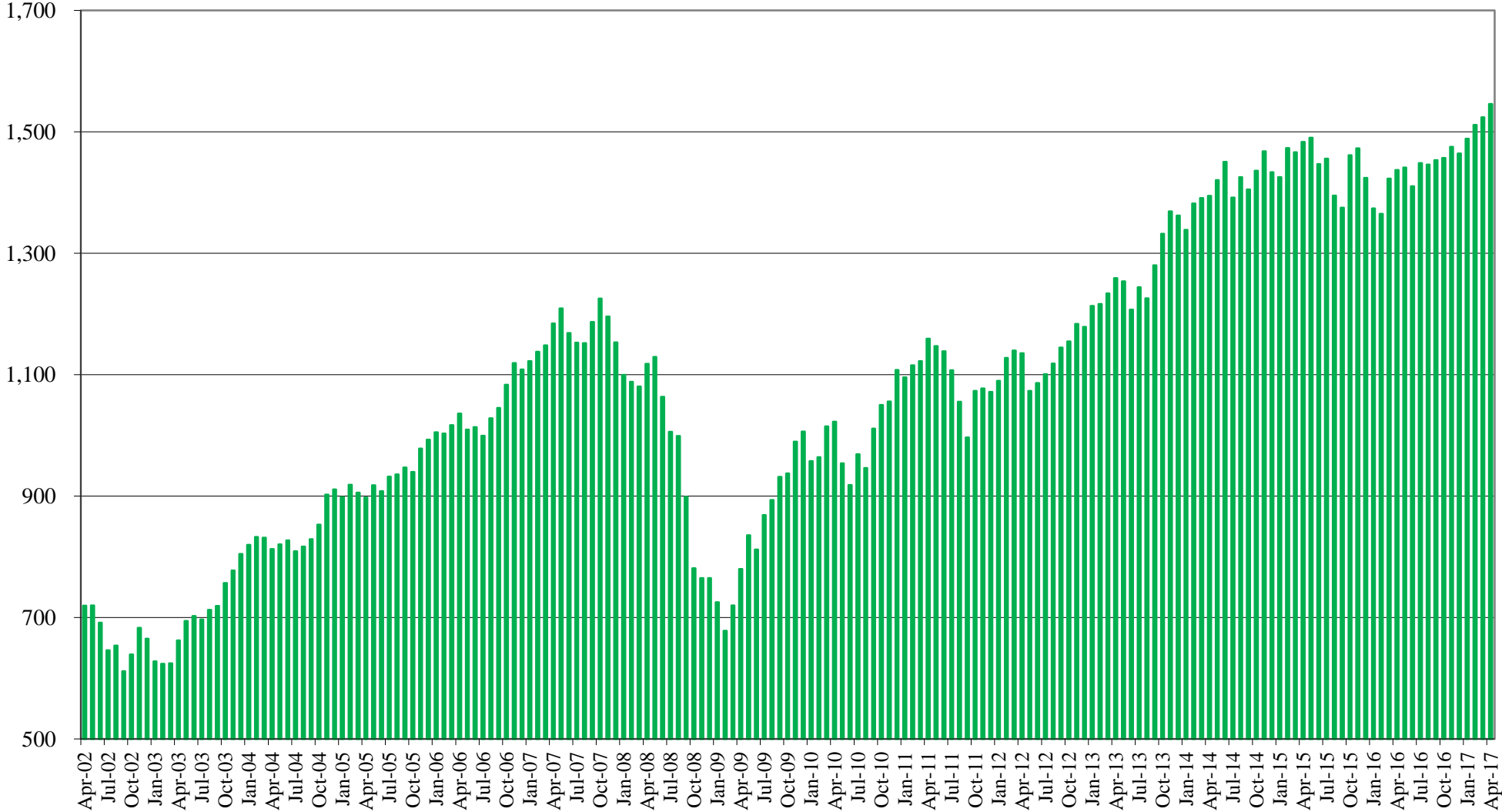
OPERF NAV
15 years ending April 2017
(\$ in Millions)



SAIF NAV
15 years ending April 2017
(\$ in Millions)



CSF NAV
15 years ending April 2017
(\$ in Millions)



TAB 9 – Calendar — Future Agenda Items

2017/18 OIC Forward Calendar and Planned Agenda Topics

- August 9, 2017:** OPERF Currency Policy Recommendation
Alternatives Portfolio Manager Recommendation
IAP Structure Recommendation
OIC Policy Updates
- September 20, 2017:** OPERF Currency Manager Recommendation
Alternatives Portfolio Manager Recommendations (2)
IAP Methodology/Manager Recommendation
Q2 OPERF Performance & Risk Report
CEM Benchmarking Report
- November 1, 2017:** Alternatives Portfolio Manager Recommendation
Public Equity Program Review
OIC Strategic Issues Discussion
- December 13, 2017:** OIC Officer Election
Q3 OPERF Performance & Risk Report
OSTF Review
OITP Review
Fixed Income Program Review
- February 1, 2018:** Private Equity Program Review
Placement Agent Report
2019 OIC Calendar Approval
- March 14, 2018:** OPERF Overlay Review
Securities Lending Update
Real Estate Program Review
Q4 2017 OPERF Performance & Risk Report
- April 25, 2018:** OPERF Asset Allocation & Capital Market Assumptions Update
Alternatives Portfolio Review
OIC Policy Updates
SAIF Annual Review
- June 6, 2018** Opportunity Portfolio Review
Q1 OPERF Performance & Risk Report
Operations Update
CSF Annual Review

TAB 10 – Open Council Discussion



Economic Assumptions & Actuarial Methods

OREGON PUBLIC EMPLOYEES RETIREMENT SYSTEM

Presented by:

Matt Larrabee, FSA, EA

Scott Preppernau, FSA, EA

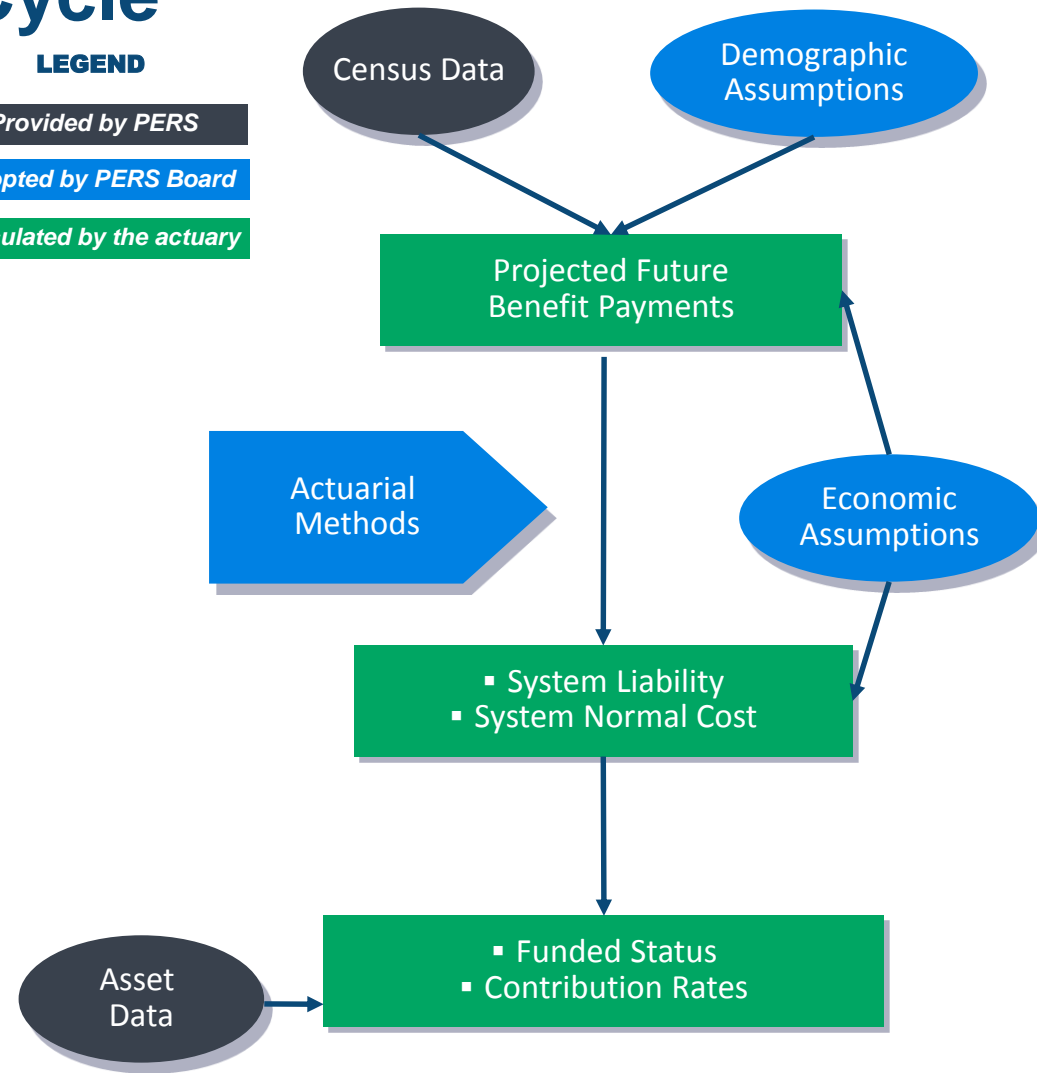
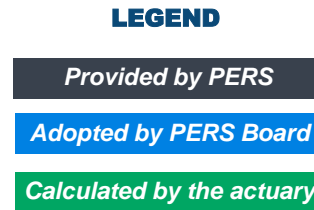
May 26, 2017

Agenda

- Review of non-investment economic assumptions
- Long-term investment return assumption
- Actuarial methods
 - Cost allocation method
 - UAL/shortfall amortization technique
 - Rate collaring

Two-Year Rate-Setting Cycle

- July 2017: Assumptions & methods adopted by Board in consultation with the actuary
- September 2017: System-wide 12/31/16 “advisory” actuarial valuation results
- November 2017: Advisory 2019-2021 employer-specific contribution rates
- July 2018: System-wide 12/31/17 “rate-setting” actuarial valuation results
- September 2018: Disclosure & adoption of employer-specific **2019-2021** contribution rates



Board Objectives - Methods & Assumptions

- Transparent
- Predictable and stable rates
- Protect funded status
- Equitable across generations
- Actuarially sound
- GASB compliant

Some of the objectives can conflict, particularly in periods with significant volatility in investment return or projected benefit levels. Overall system funding policies should seek an appropriate balance between conflicting objectives.

The Fundamental Cost Equation

- Long-term program costs are the contributions, which are governed by the “fundamental cost equation”:

$$\begin{aligned} & \mathbf{BENEFITS =} \\ & \mathbf{EARNINGS +} \\ & \mathbf{CONTRIBUTIONS} \end{aligned}$$

Governance Structure

- Benefits:
 - Plan design set by Oregon Legislature
 - Subject to judicial review
- Earnings:
 - Asset allocation set by OIC
 - Actual returns determined by market
- Contributions:
 - Funding, including methods & assumptions, set by PERS Board
 - Since contributions are the balancing item in the fundamental cost equation, PERS Board policies primarily affect the **timing** of contributions
 - Different actuarial methods and assumptions produce different projected future contribution patterns



Review of Non-Investment Economic Assumptions

Assumptions to Be Reviewed

	12/31/2015 Valuation “Current” Assumptions
Inflation	2.5%
Real Wage Growth	<u>1.0%</u>
Payroll Growth	3.5%
<u>Administrative Expenses:</u>	
- OPSRP	\$5.5 million
- Tier 1/ Tier 2	\$33.0 million

Economic Assumptions

Inflation

- The inflation assumption affects other assumptions, including payroll growth, investment return, and health care inflation
- Inflation can vary significantly over time
- One estimate of future inflation can be derived from yields of Treasury securities and Treasury Inflation Protected Securities (TIPS)
- Social Security’s current “intermediate cost” 30-year average inflation assumption is 2.61%
- In our opinion, the current assumption of 2.5% is reasonable

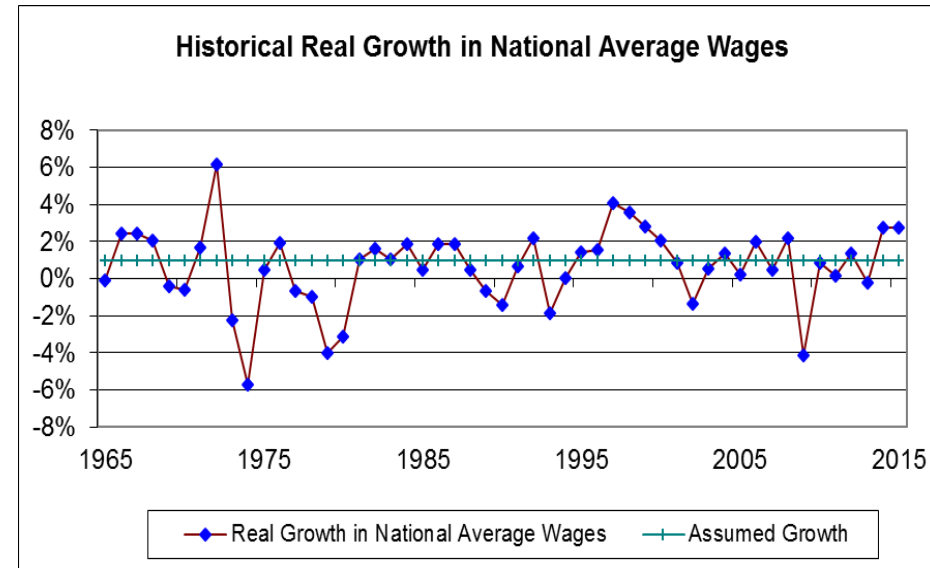
Period Ending 12/31/2016	Average Inflation
10 years	1.81%
20 years	2.12%
30 years	2.64%
40 years	3.62%

As of 12/31/2016	10 Year	30 Year
Treasury Yield	2.45%	3.06%
TIPS Yield	<u>0.50%</u>	<u>0.99%</u>
“Breakeven” Inflation	1.95%	2.07%

Economic Assumptions

Real Wage Growth

- An individual member's assumed annual salary increase is composed of:
 - Inflation
 - Real wage growth
 - Individual merit/longevity component
- Real wage growth represents the increase in wages in excess of inflation for the entire group due to improvements in productivity and competitive market pressures
- Social Security's long-term "intermediate cost" real wage growth assumption is 1.2%
- In our opinion, the current assumption of 1.0% is reasonable



Most Recently Available	Average Real Wage Growth
10 Years	0.80%
20 Years	1.18%
30 Years	0.93%
40 Years	0.67%

Economic Assumptions

Payroll Growth

- Overall system payroll growth is assumed to equal the sum of:
 - Inflation
 - Real wage growth
- The system payroll growth assumption determines the shape of the curve of payments to amortize the unfunded liability
- Given that in our opinion both an inflation assumption of 2.5% and a real wage growth assumption of 1.0% are reasonable, the current payroll growth assumption of 3.5% is also reasonable in our opinion
 - Over the past ten years, average annualized system valuation payroll growth has been approximately 3.5%

Economic Assumptions

Administrative Expenses

- Actual administrative expenses for recent years are shown below

(\$ millions)	Tier 1/Tier 2		OPSRP	
	Actual Expenses	% of Beginning of Year Assets	Actual Expenses	% of Beginning of Year Assets
2012	\$26.4	0.06%	\$5.3	0.63%
2013	\$29.6	0.06%	\$4.5	0.38%
2014	\$30.1	0.06%	\$5.0	0.30%
2015	\$31.5	0.06%	\$5.7	0.28%
2016	\$35.8	0.07%	\$5.9	0.25%

- Overall, 2016 admin expenses were 0.08% of total assets
- Proposed assumed annual expenses for 2017 and 2018:

Tier 1/Tier 2: \$37.5 million
 OPSRP: \$6.5 million

Assumptions to Be Reviewed

	12/31/2015 Valuation Assumptions	12/31/2016 Valuation Proposed* Assumptions
Inflation	2.5%	2.5%
Real Wage Growth	<u>1.0%</u>	<u>1.0%</u>
Payroll Growth	3.5%	3.5%
<u>Administrative Expenses:</u>		
- OPSRP	\$5.5 million	\$6.5 million
- Tier 1/Tier 2	\$33.0 million	\$37.5 million

No explicit assumption is made for investment-related expenses, which are accounted for implicitly in the analysis of the long-term investment return assumption.

*No action is needed on “proposed” assumptions today, since all assumptions and methods will be adopted at the July 2017 Board meeting

Long-Term Investment Return Assumption

Long-Term Investment Return Assumption

- Uses of the investment return assumption
 - As a “discount rate” for establishing the:
 - Actuarial accrued liability, which is a net present value
 - Associated unfunded actuarial liability, also called the UAL or actuarial shortfall
 - Guaranteed crediting level for regular Tier 1 active member account balances
 - Annuitization rate for converting member account balances to lifetime money match monthly benefits



Reflecting expectations for both investment earnings and benefit levels for certain members, the assumption helps set a reasonable and appropriate budgeting glide path for projected employer contribution rates

Investment Return Estimates

- To assist the Board, we developed return estimates based on capital market outlook assumptions from four sources and an industry standard mean/variance model
 - Milliman
 - Callan – Consultant to OIC
 - Pension Consulting Alliance (PCA) – Consultant to OIC
 - 2016 Horizon survey of capital market assumptions (survey of 35 advisors)
- Estimates do not reflect any possible “alpha” due to selected managers potentially outperforming market benchmarks over the long term, net of fees
- Today’s speakers are not credentialed investment advisors
 - We are presenting Milliman capital market outlook model results based on assumptions developed by Milliman’s credentialed investment professionals

Details on each set of capital market outlook assumptions are in the Appendix

Investment Return Estimates

- Capital market outlooks change over time
 - Milliman outlook updated every six months
 - Recent changes and key factors shown below for Milliman model of PERS asset allocation

Milliman 20-year outlook	May 2015	Nov 2016	May 2017
Median Annualized Return	6.99%	6.84%	6.70%
US Public Equity	6.74%	6.38%	6.36%
Private Equity	7.97%	7.68%	7.82%
US Core Fixed Income	4.00%	4.08%	3.49%
US Short-term Bonds	3.61%	3.55%	3.38%
Real Estate	5.84%	5.68%	5.51%

Asset category returns shown above are 20-year annualized geometric mean returns

Investment Return Estimates

- Estimates are based on OIC's target long-term asset allocation
 - Current actual allocation differs somewhat from the target allocation
- Callan, PCA, and Horizon estimates are calibrated over a shorter investment timeframe than Milliman's estimates
 - Also reflect lower level of assumed inflation

	Milliman	Callan	PCA	Horizon
Median Annualized Return	6.70%	7.05%	7.40%	7.24%
Assumed Inflation	2.50%	2.25%	2.25%	2.16%
Timeframe Modeled	20 years	10 years	10 years	10 years

The median returns shown above are geometric annualized average returns over the timeframes indicated above for each provided set of capital market assumptions

Effects of Lowering the Assumed Return

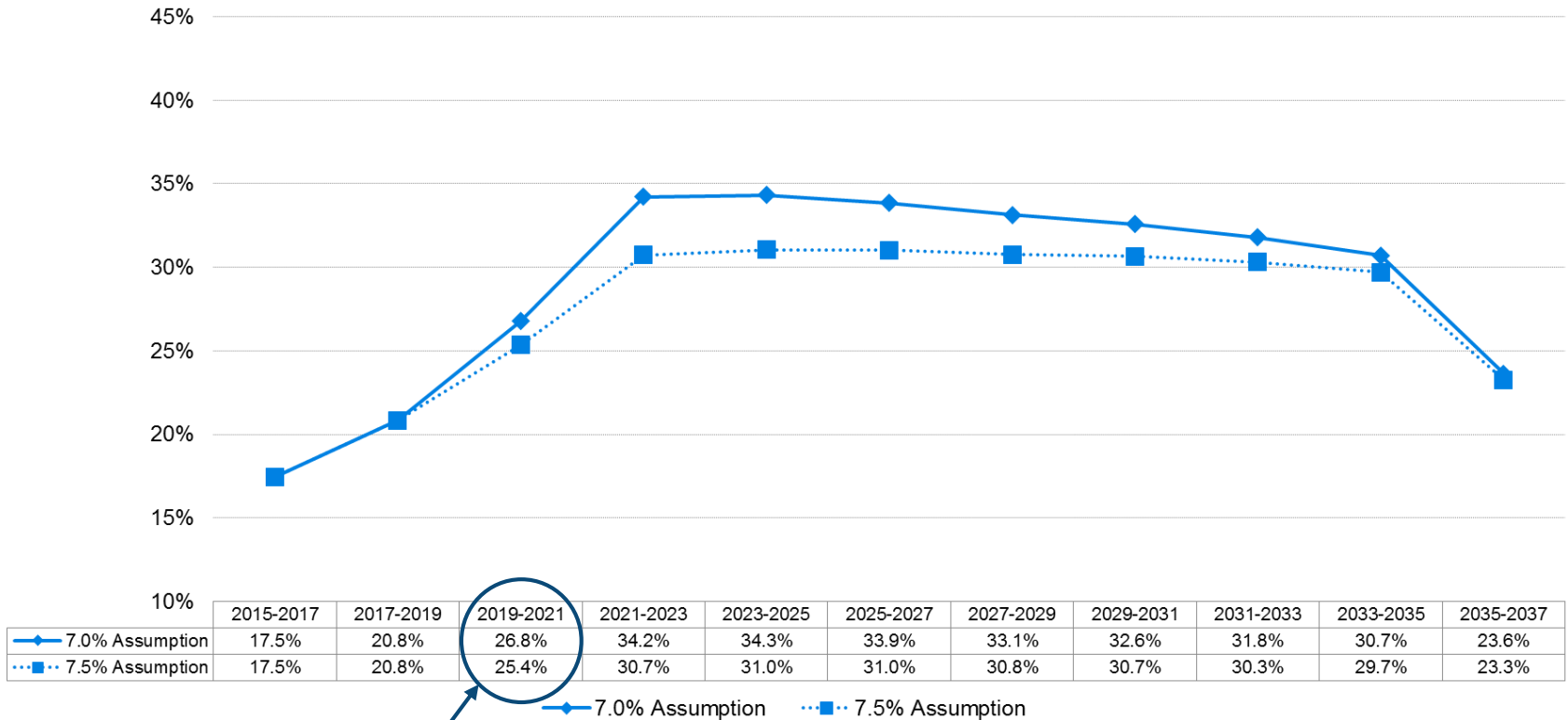
- A lower investment return assumption would produce higher calculated liabilities and contribution rates
- Liabilities are net present values, as of the valuation date, of a benefit payment projection that stretches far into the future
 - Changing the assumption modifies the projected balance of the fundamental cost equation between future investment earnings and future contributions
 - The actual balance will depend on actual investment earnings, not on the assumed return adopted by the PERS Board
 - The effect of lowering the assumed return to 7.00% is estimated as a 3.5% of payroll increase (or 1.8% of payroll increase at a 7.25% assumption) in the uncollared system average base employer contribution rate
- For PERS, such an assumption change would also lower benefits for future retirements calculated under Money Match
 - From “PERS by the Numbers”, in 2016 the Money Match formula determined benefits for 34% of retirees (typically long-service General Service members)
 - Illustration for a hypothetical Tier 1 member shown in Appendix

Financial Modeling & The Return Assumption

- Milliman prepared additional financial modeling projections, building on work from the November 2016 Board meeting
- Includes projections under both:
 - 7.5% investment return assumption (as presented in November 2016)
 - 7.0% investment return assumption (as requested for subsequent analysis)
- Results are illustrative, not presuming a specific Board decision on investment return assumption
- See November 2016 Board materials for discussion of modeling basis and assumptions

Actual Return 7.0%; Assumption either 7.0% or 7.5% Employer Contribution Rates

System Average Employer Collared Base Pension Rates

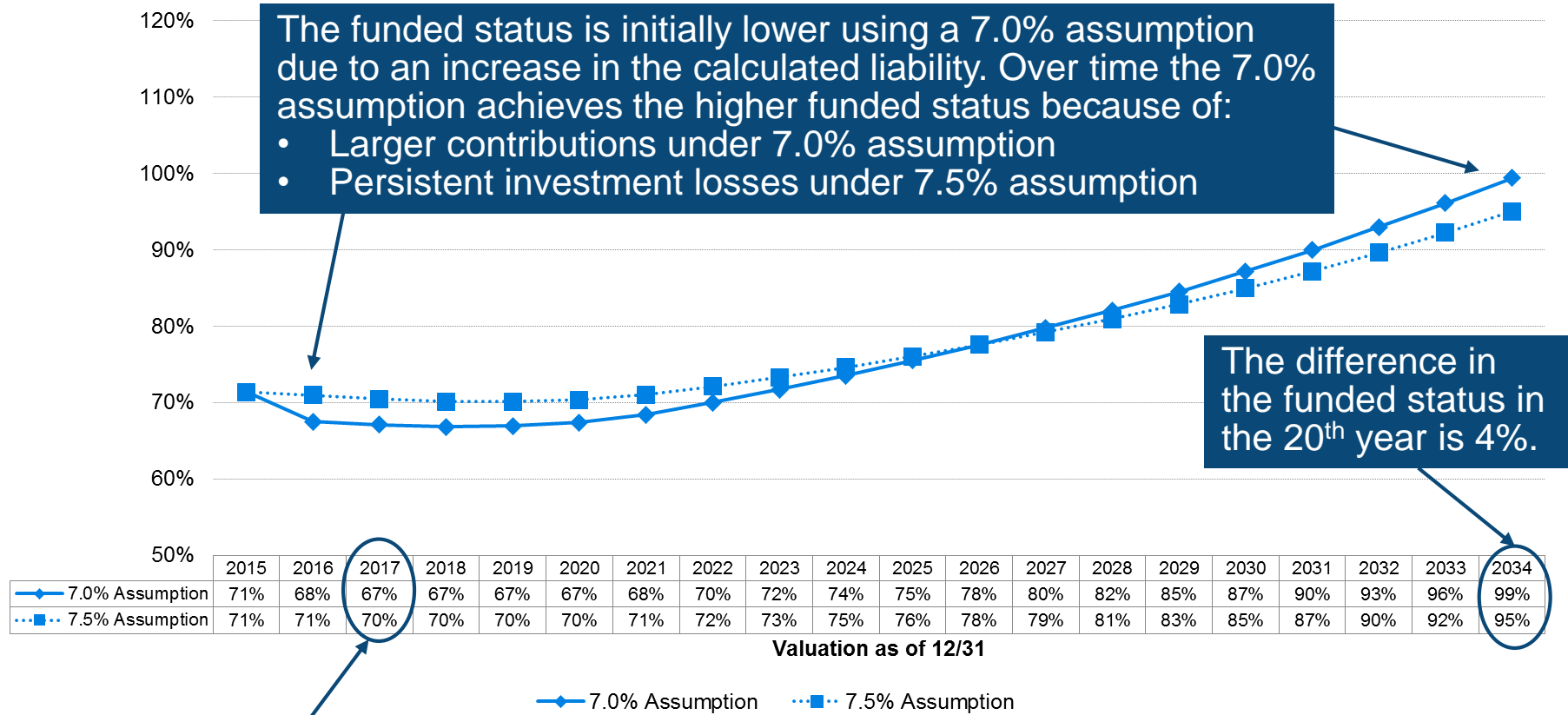


Contribution rates for 2019-2021 will be calculated in the rate-setting actuarial valuation as of year-end 2017, summary results of which will be presented to the Board in July 2018.

Actual Return 7.0%; Assumption either 7.0% or 7.5%

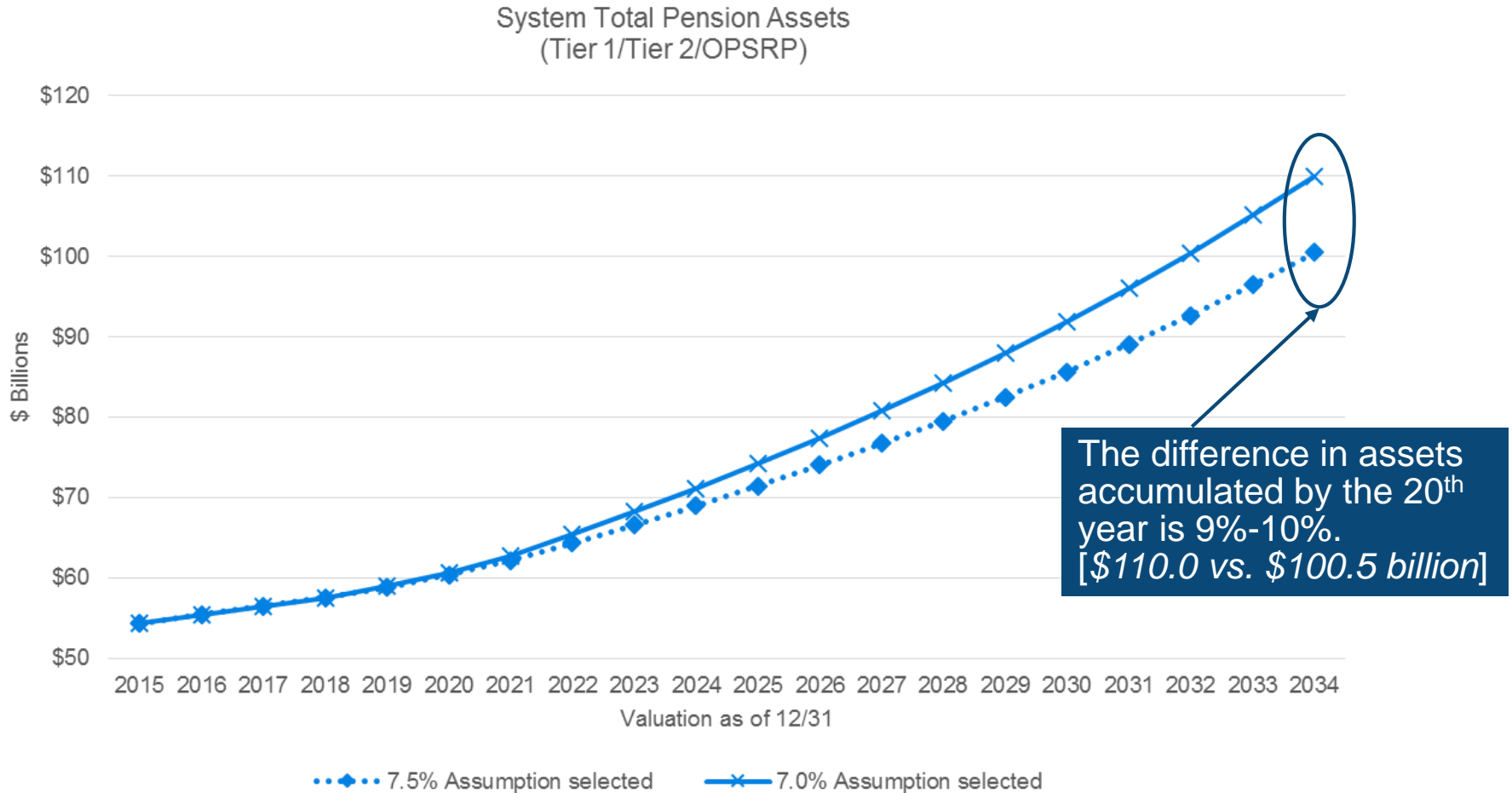
Year-End Funded Status

System Average Funded Status (Excluding Side Accounts)



The year-end 2017 valuation will calculate 2019-2021 rates. The largest potential variability source from the above projections is likely to be actual investment returns through year-end 2017. For example, actual 2017 return differing from assumption by +/-5% would modify funded status by 3%-4%.

Actual Return 7.0%; Assumption either 7.0% or 7.5% Valuation Assets (Excluding Side Accounts)



GASB and Actuarial Assumptions

- GASB Statements 67 & 68 require financial reporting actuarial assumptions to follow Actuarial Standards of Practice (ASOPs)
- Under ASOPs, if a selected assumption “*significantly conflicts*” with what the actuary considers reasonable, the actuary must make a statement to this effect in the report
- GASB recently published Statement 82 amending (or clarifying) how GASB 67 & 68 apply in such a situation
 - Per GASB 82, employer financial reporting produced using a disclaimed assumption might not be considered GAAP-compliant
- Assumptions requiring disclaimer language could lead to:
 - Need for second set of results on different assumption basis, or
 - Potential for modified audit opinions

Wrap-up & Next Steps on the Return Assumption

- In our opinion, the long-term future investment return assumption should be lowered based on the current data from the capital market outlook models, review of the guiding principles, and our perspective regarding Actuarial Standards of Practice
- At the July meeting, we will ask the Board to adopt an assumption for use in the upcoming valuation

Actuarial Methods

Key Actuarial Methods

	12/31/2015 Valuation Methods	12/31/2016 Valuation Proposed* Methods
Cost Allocation Method	Entry Age Normal	No change
Shortfall Amortization Method	Level percent of pay, layered fixed periods: Tier 1/Tier 2: 20 years OPSRP: 16 years RHIA/RHIPA: 10 Years	No change
Rate Collar	Limits change in based contribution rate to larger of 20% of current rate or 3.00% of payroll; Collar widens incrementally when funded status below 70%	No change

*No action is needed on “proposed” methods today, since all assumptions and methods will be adopted at the July 2017 Board meeting

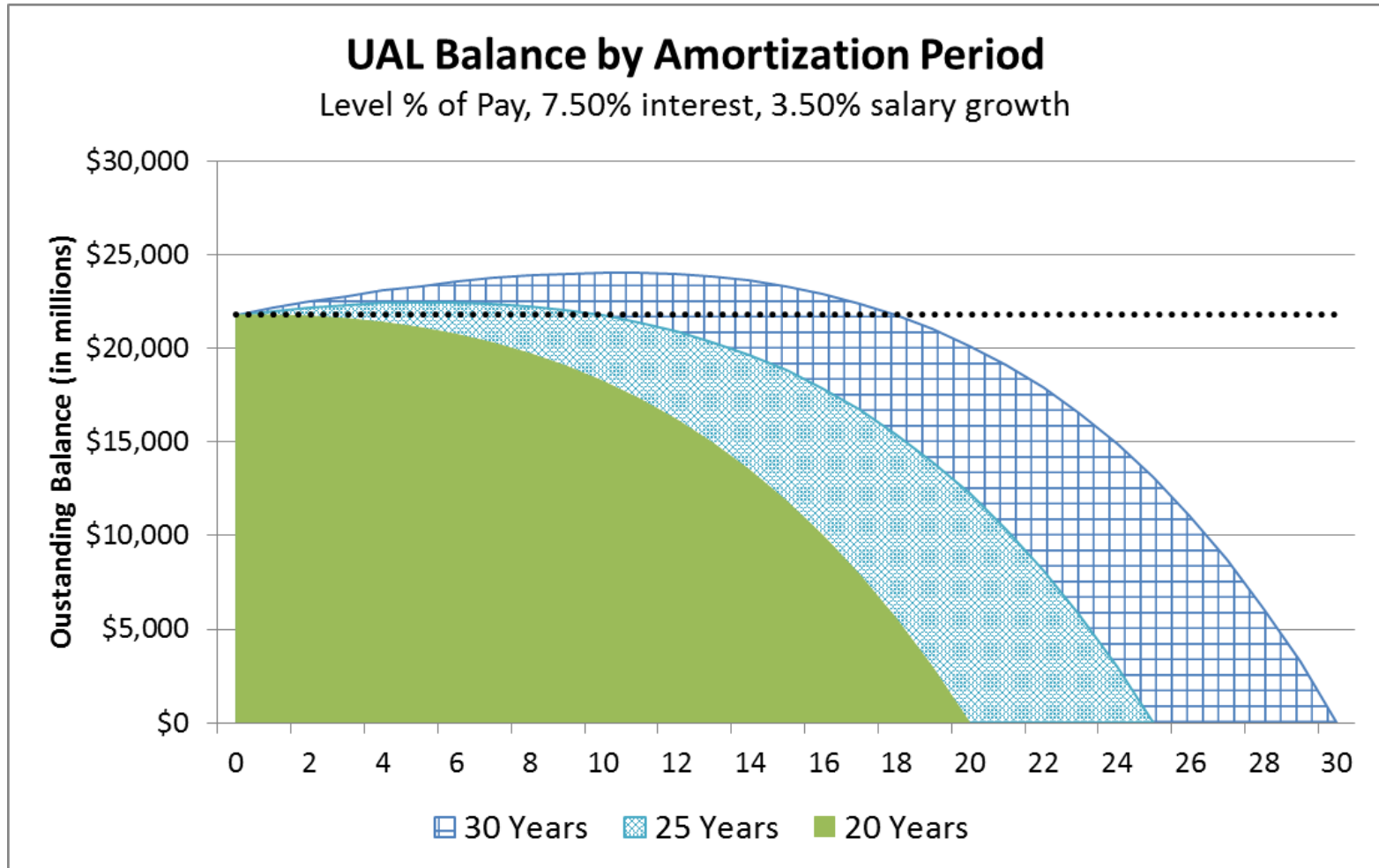
Cost Allocation Method

- Rates are calculated to pre-fund retirement benefits during a member's working career if all assumptions are met
- The present day value of projected future benefits allocated to a particular working year is the Normal Cost
- The present day value of projected future benefits allocated to prior years is the Accrued Liability
- The division between past, current & future service is done through use of an actuarial cost allocation method
- PERS currently uses GASB-compliant cost allocation method of Entry Age Normal (EAN)
 - We recommend no change to the cost allocation method

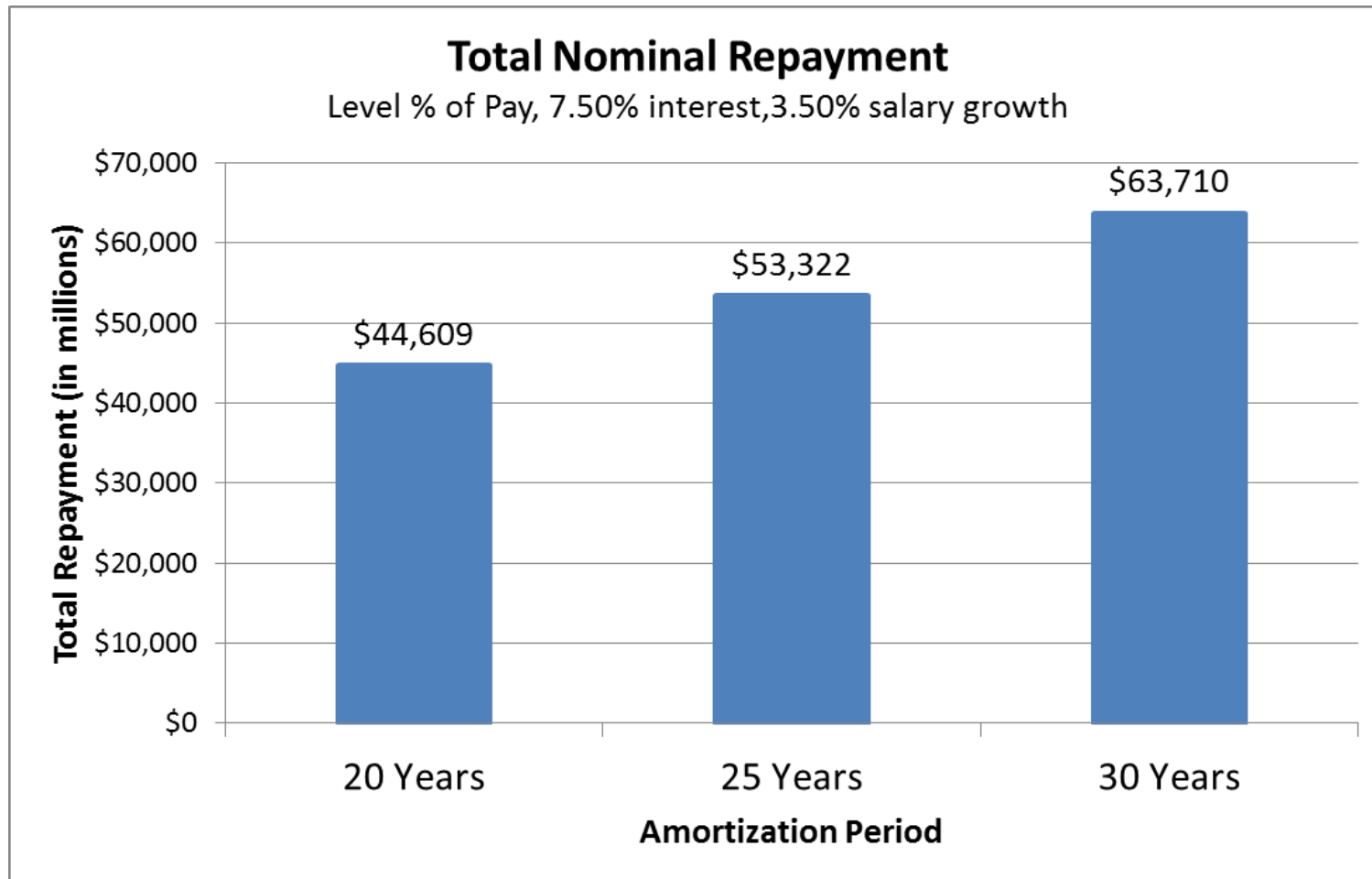
Shortfall Amortization Periods

- A key part of contribution rate calculations is amortization of Tier 1 / Tier 2 shortfalls over twenty years as a level percentage of payroll
 - As part of changes made in a prior experience study, UAL as of December 31, 2013 was re-amortized over twenty years
 - Subsequent gains or losses, including loss as of December 31, 2015, amortized over twenty years from the rate-setting valuations in which they are recognized
- Twenty years avoids significant negative amortization, where shortfall actually increases in the initial “pay down” years even if assumptions are met and contributions are made
 - The following slide illustrates pay down of a \$22 billion shortfall over periods of 20, 25 or 30 years at current assumptions

Shortfall Amortization Periods



Shortfall Amortization Periods



The Rate Collar

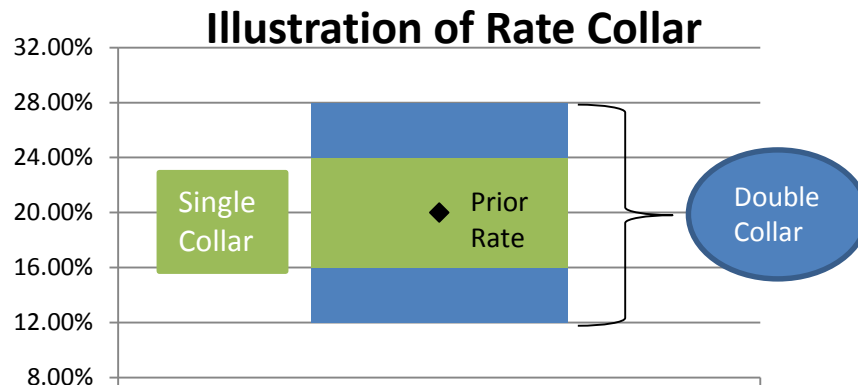
- In 2005, the Board adopted an employer contribution rate smoothing method called the “rate collar”
- After a major change in unfunded actuarial liability (UAL), the difference between the current contribution rate and the updated actuarially calculated rate can be large
 - The rate collar is a formulaic approach that spreads large employer contribution rate changes systematically across several biennia
- It allows employers to see both:
 - An advanced estimate of the maximum base rate change per biennium
 - The currently estimated long-term (20-year) contribution rate on a current market value of assets basis

Rate Collaring

- The rate collar approach has three steps:
 - Calculate shortfall based on fair market asset values (excluding side accounts)
 - Calculate the actuarially determined UAL Rate based on shortfall amortization period and other key assumptions
 - Check the calculated overall rate (Normal Cost Rate plus UAL Rate) against the contribution rate currently in effect
 - If the actuarial rate change is too large, part of the calculated increase is “collared” and deferred to subsequent periods
 - The UAL Rate actually charged to employers is adjusted downward to reflect the rate collar’s effects

The Rate Collar's Current Design

- The maximum change typically permitted by the collar is:
 - 20% of the rate currently in effect (3% of payroll minimum collar width)
- If funded status is 60% or lower, the width of the collar doubles
 - 40% of rate currently in effect (6% of payroll minimum collar width)
- If the funded status is between 60% and 70%, the collar size is pro-rated between the initial collar and double collar level



- Collars are calculated at a rate pool level and limit the biennium to biennium increase in the UAL Rate for a given rate pool

Agenda for July Meeting

- Review demographic assumptions
- Adopt all methods and assumptions for use in:
 - December 31, 2016 “advisory” actuarial valuation that estimates 2019-2021 contribution rates
 - December 31, 2017 “rate-setting” actuarial valuation that sets recommended 2019-2021 contribution rates for PERS Board adoption

Caveats and Disclaimers

This presentation discusses actuarial methods and assumptions for use in the valuation of the Oregon Public Employees Retirement System (“PERS” or “the System”). For the most recent complete actuarial valuation results, including cautions regarding the limitations of use of valuation calculations, please refer to our formal Actuarial Valuation Report as of December 31, 2015 (“the Valuation Report”) published on September 27, 2016. The Valuation Report, including all supporting information regarding data, assumptions, methods, and provisions, is incorporated by reference into this presentation. The statements of reliance and limitations on the use of this material is reflected in the actuarial report and still apply to this presentation.

In preparing this presentation, we relied, without audit, on information (some oral and some in writing) supplied by the System’s staff, as well as capital market expectations provided by Callan and information presented to the Oregon Investment Council. This information includes, but is not limited to, statutory provisions, employee data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

Milliman’s work product was prepared exclusively for Oregon PERS for a specific and limited purpose. It is a complex, technical analysis that assumes a high level of knowledge concerning PERS’ operations, and uses PERS’ data, which Milliman has not audited. It is not for the use or benefit of any third party for any purpose. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman’s work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Any third party recipient of Milliman’s work product who desires professional guidance should not rely upon Milliman’s work product, but should engage qualified professionals for advice appropriate to its own specific needs.

The consultants who worked on this assignment are pension actuaries. Milliman’s advice is not intended to be a substitute for qualified legal or accounting counsel. The signing actuaries are independent of the plan sponsors. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Effects of Lowering the Assumed Return

- Lowering the assumption to either 7.00% or 7.25% would affect the Money Match calculation for a member age 59½ with a \$135,000 member account balance as of 6/30/2017 as shown:

Benefit Commencement	Starting Benefit Under Assumed Rate		
	7.50%	7.25%	7.00%
7/1/2017	\$1,971		
12/1/2017	\$2,040		
1/1/2018		\$2,010	\$1,965
3/1/2018		\$2,039	\$1,993
6/1/2018		\$2,081	\$2,033

- At a 7.00% assumption, it would take about six months without retirement for the December 2017 initial benefit level to be reached
 - At a 7.25% assumed return, it would take about three months
 - Illustration ignores Full Formula “floor”, which may mitigate any benefit decrease

Appendix

Actuarial Basis

Capital Market Assumptions - Milliman

For assessing the expected portfolio return under Milliman's capital market assumptions, we considered the Oregon PERS Fund to be allocated among the model's asset classes as shown below. This allocation is based on the Oregon Investment Council's Statement of Investment Objectives and Policy Framework for the Oregon PERS Fund, as revised December 3, 2014, and changes adopted in June 2015.

	Annual Arithmetic Mean	20-Year Annualized Geometric Mean	Annual Standard Deviation	Policy Allocation
US Large/Mid-Cap Equity	7.45%	6.30%	16.25%	15.75%
US Small Cap Equity	8.49%	6.69%	20.55%	1.31%
US Micro-Cap Equity	9.01%	6.80%	22.90%	1.31%
Non-US Developed Equity	8.21%	6.71%	18.70%	13.13%
Emerging Markets Equity	10.53%	7.45%	27.35%	4.13%
Non-US Small Cap Equity	8.67%	7.01%	19.75%	1.88%
Private Equity	11.45%	7.82%	30.00%	17.50%
US Core Fixed Income	3.59%	3.49%	4.55%	8.00%
US Short-Term Bonds	3.42%	3.38%	2.70%	8.00%
US Bank/Leveraged Loans	5.34%	5.09%	7.50%	3.00%
High Yield Bonds	6.90%	6.45%	10.00%	1.00%
Real Estate	6.15%	5.51%	12.00%	10.00%
Global REITs	8.26%	6.37%	21.00%	2.50%
Timber	6.37%	5.62%	13.00%	1.88%
Farmland	6.90%	6.15%	13.00%	1.88%
Infrastructure	7.54%	6.60%	14.65%	3.75%
Commodities	5.43%	3.84%	18.95%	1.88%
Hedge Fund of Funds - Diversified	4.36%	4.09%	7.80%	2.50%
Hedge Fund Event-Driven	6.21%	5.86%	8.90%	0.63%
US Inflation (CPI-U)		2.50%	1.85%	N/A
Fund Total (reflecting asset class correlations)	7.48%	6.74%*	12.97%	100.00%

* Reflects 0.10% average reduction to model passive investment expenses. The model does not try to assess the actual investment expenses for active management. The model's 20-year annualized geometric median is **6.70%**.

Appendix

Actuarial Basis

Capital Market Assumptions - Callan

For assessing the expected portfolio return under Callan's capital market assumptions, we applied the assumptions shown below provided by Callan.

	10-Year Annualized Geometric Mean	Annual Standard Deviation	Policy Allocation
Large Cap Equity	6.68%	17.40%	15.38%
Small/Mid Cap Equity	7.04%	22.60%	3.00%
Emerging Markets Equity	7.24%	27.45%	4.50%
Global ex-US Equity	6.98%	21.00%	12.75%
International Small Cap Equity	7.00%	24.30%	1.88%
OIC Private Equity	9.50%	26.30%	17.50%
US Fixed Income	2.98%	3.75%	20.00%
Diversifying Strategies	6.25%	11.00%	5.00%
OIC Real Assets	6.60%	15.00%	20.00%
Inflation	2.25%	1.50%	N/A
Fund Total (reflecting asset class correlations)	7.15%*	14.11%	100.00%

* 10-year annualized geometric median is **7.05%**.

Appendix

Actuarial Basis

Capital Market Assumptions - PCA

For assessing the expected portfolio return under PCA's capital market assumptions, we applied the assumptions shown below provided by PCA in their April 26 presentation to OIC.

	10-Year Annualized Geometric Mean	Annual Standard Deviation	Policy Allocation
Global Equity	7.15%	20.00%	37.50%
Private Equity	8.50%	27.00%	17.50%
OIC Real Estate	7.90%	21.00%	12.50%
OIC Fixed Income	2.90%	7.70%	20.00%
OIC Liquid Alternatives	6.10%	14.00%	6.00%
OIC Illiquid Alternatives	6.80%	14.90%	6.50%
Inflation	2.25%	1.50%	N/A
Fund Total (reflecting asset class correlations)	7.49%*	13.51%	100.00%

* 10-year annualized geometric median is 7.40%.

Appendix

Actuarial Basis

Capital Market Assumptions - Horizon

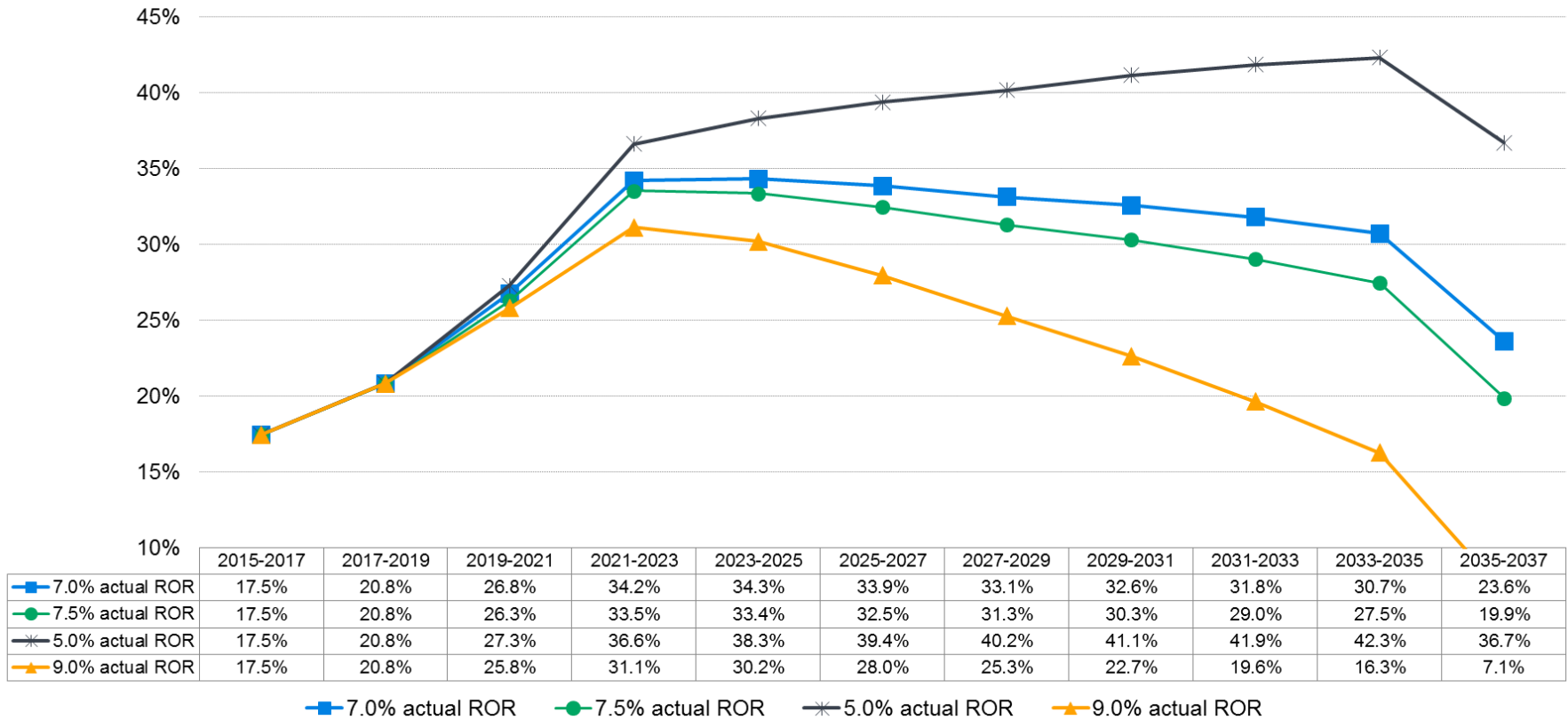
For assessing the expected portfolio return under an additional set of capital market assumptions, we applied the assumptions from the 2016 Survey of Capital Market Assumptions published by Horizon Actuarial Services, LLC. According to the survey report, the 10-year return assumptions shown below represent an average of the expectations for 35 investment advisors responding to the survey.

	10-Year Annualized Geometric Mean	Annual Standard Deviation	Policy Allocation
US Equity – Large Cap	6.64%	16.92%	15.75%
US Equity – Small/Mid Cap	7.00%	21.01%	5.13%
Non-US Equity – Developed	7.12%	19.50%	15.00%
Non-US Equity – Emerging	8.48%	26.35%	4.13%
US Corporate Bonds – Core	3.41%	5.96%	12.00%
US Corporate Bonds – High Yield	5.90%	11.01%	4.00%
US Treasuries (Cash Equivalents)	2.14%	2.79%	4.00%
Real Estate	6.36%	14.74%	13.75%
Hedge Funds	5.41%	8.39%	3.13%
Commodities	3.98%	18.50%	1.88%
Infrastructure	6.59%	13.78%	3.75%
Private Equity	9.22%	23.12%	17.50%
Inflation	2.16%	1.78%	N/A
Fund Total (reflecting asset class correlations)	7.31%*		100.00%

* 10-year annualized geometric median is 7.24%.

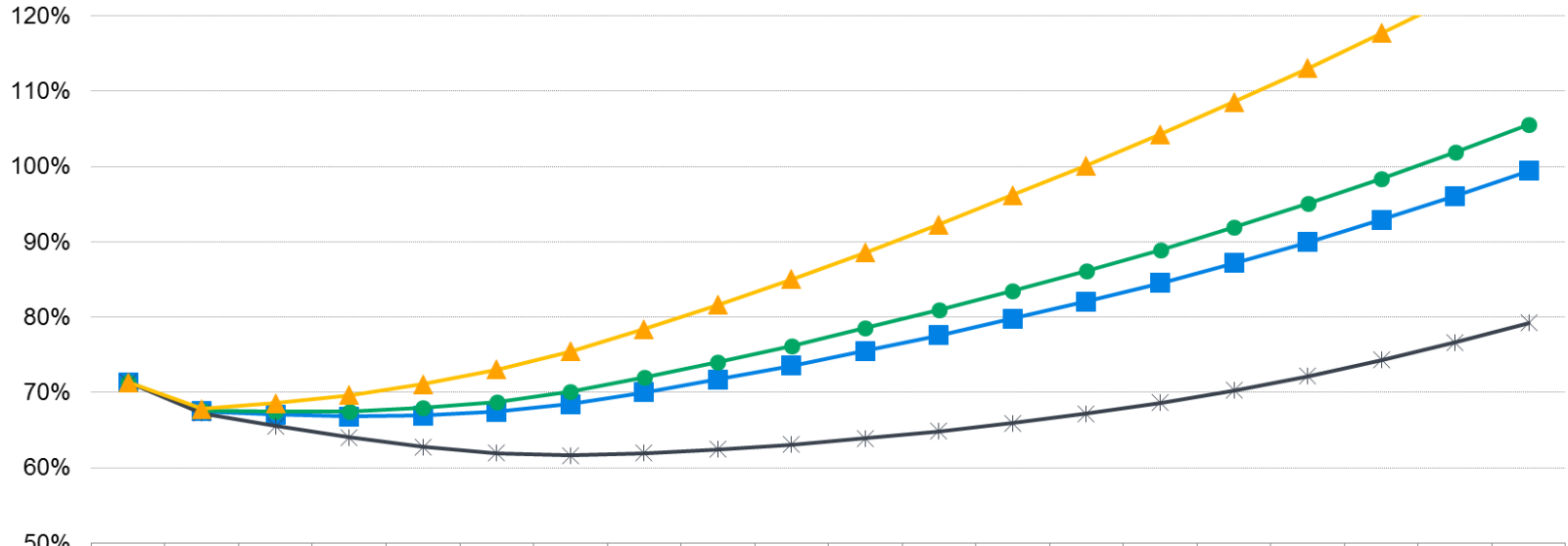
Financial Modeling: 7.0% Return Assumption

System Average Employer Collared Base Pension Rates



Financial Modeling: 7.0% Return Assumption

System Average Funded Status (Excluding Side Accounts)

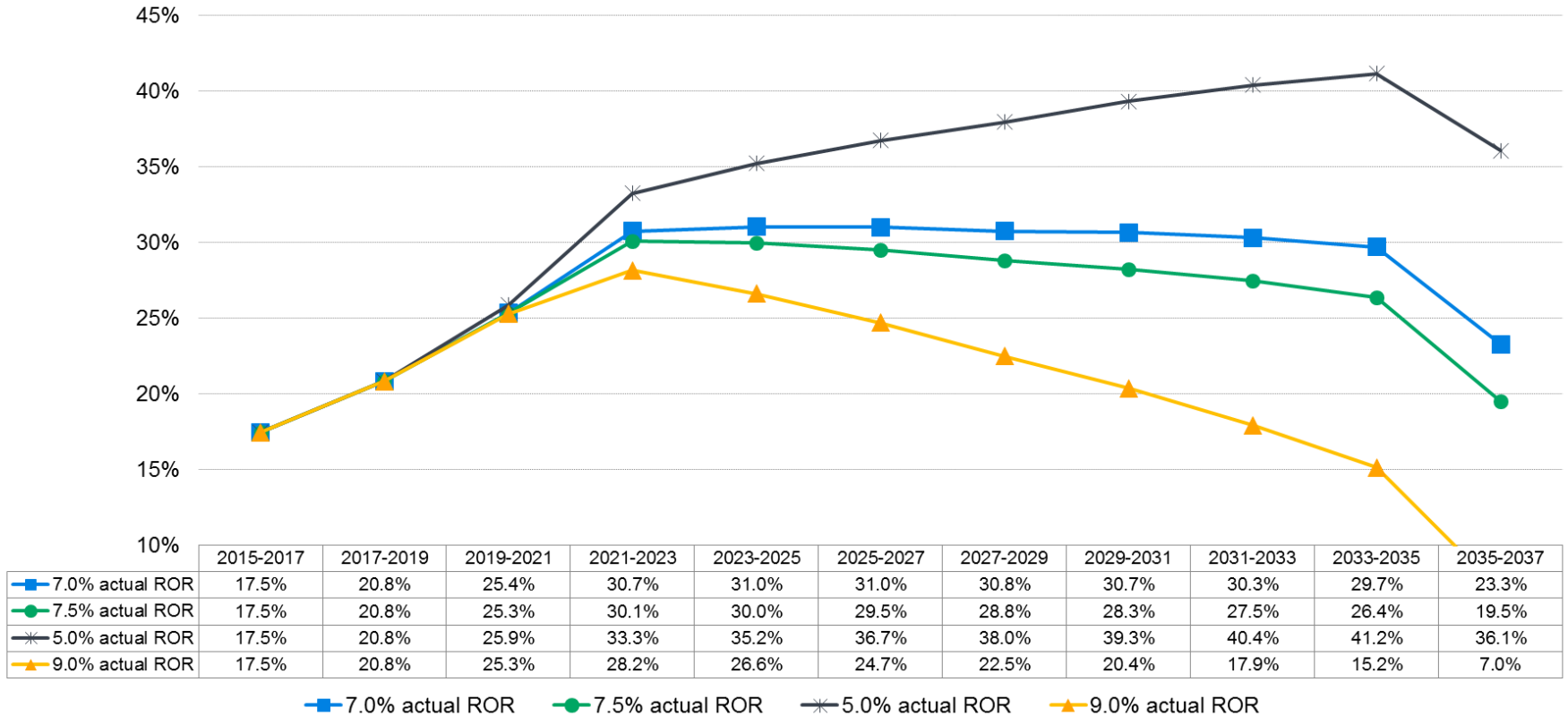


Valuation as of 12/31

■ 7.0% actual ROR
 ● 7.5% actual ROR
 ✱ 5.0% actual ROR
 ▲ 9.0% actual ROR

Financial Modeling: 7.5% Return Assumption

System Average Employer Collared Base Pension Rates



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Financial Modeling: 7.5% Return Assumption

System Average Funded Status (Excluding Side Accounts)

