
Oregon Investment Council

December 7, 2016
9:00 AM

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

Katy Durant
Chair

John Skjervem
Chief Investment Officer

Ted Wheeler
State Treasurer





OREGON INVESTMENT COUNCIL

Agenda

December 7, 2016
9:00 AM

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

<u>Time</u>	<u>A. Action Items</u>	<u>Presenter</u>	<u>Tab</u>
9:00-9:05	1. Review & Approval of Meeting Minutes October 26, 2016 Committee Reports	Katy Durant <i>OIC Chair</i> John Skjervem <i>Chief Investment Officer</i>	1
9:05-9:50	2. JPMCB Strategic Property Fund <i>OPERF Real Estate Portfolio</i>	Tony Breault <i>Senior Investment Officer, Real Estate</i> Austin Carmichael <i>Investment Officer</i> Christy Fields <i>Managing Director, Pension Consulting Alliance</i> Ann Cole <i>Managing Director & Portfolio Manager, J.P. Morgan Asset Management</i> Alexia Gottschalch <i>Managing Director & Head of Client Strategy, J.P. Morgan Asset Management</i>	2
9:50-10:30	3. EQT Infrastructure Fund III <i>OPERF Alternatives Portfolio</i>	Ben Mahon <i>Senior Investment Officer, Alternatives</i> Tom Martin <i>Managing Director, TorreyCove Capital Partners</i> Andreas Huber <i>Partner, EQT Partners</i> Darlene Sammon <i>Investor Relations, EQT Partners</i>	3
10:30-10:40	----- BREAK -----		

Katy Durant
Chair

Rukaiyah Adams
Vice Chair

Rex Kim
Member

John Russell
Member

Ted Wheeler
State Treasurer

Steve Rodeman
PERS Director

10:40-11:10 4. Fixed Income Program Review **Tom Lofton** **4**
OPERF Fixed Income Portfolio *Investment Officer, Fixed Income*
Janet Becker-Wold
Senior Vice President, Callan Associates
Tony Vorlicek
Vice President, BlackRock Solutions

B. Information Items

11:10-11:30 5. OSTF Review **Garret Cudahey** **5**
Oregon Short Term Fund *Investment Officer, Fixed Income*
Angela Schaffers
Investment Analyst, Fixed Income

11:30-11:45 6. Q3 2016 Performance & Risk Report **Karl Cheng** **6**
OPERF *Investment Officer, Portfolio Risk & Research*
Janet Becker-Wold

11:45-12:15 7. Currency Project Introduction **Karl Cheng** **7**
OPERF **Jiangning (Jen) Plett**
Senior Internal Investment Auditor, OST

12:15-12:45 8. IAP Update Discussion **Karl Cheng** **8**
OPERF **David Randall**
Director of Operations

12:45-12:50 9. Asset Allocations & NAV Updates **John Skjervem** **9**
 a. Oregon Public Employees Retirement Fund
 b. SAIF Corporation
 c. Common School Fund
 d. Southern Oregon University Endowment Fund

10. Forward Calendar **10**

11. Other Items **Council**
Staff
Consultants

C. Public Comment Invited
 10 Minutes

TAB 1 – REVIEW & APPROVAL OF MINUTES

October 26, 2016 Regular Meeting

OST Committee Reports – Verbal



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

OREGON INVESTMENT COUNCIL
OCTOBER 26, 2016
MEETING MINUTES

- Members Present: Rukaiyah Adams, Rex Kim, Steve Rodeman, John Russell, Katy Durant (via phone)
- Staff Present: John Skjervem, Deena Bothello, Karl Cheng, May Fanning, Karl Hausafus, Michael Langdon, Perrin Lim, Aliese Jacobsen, Paola Nealon, Jen Plett, Jen Peet, David Randall, Priyanka Shukla, James Sinks, Michael Viteri, Lisa Massena, Garrett Cudahey, Tony Breault, Amanda Kingsbury, Kristin Johnson, Austin Carmichael, Dana Millican, Ricardo Lopez, William Hiles, Andrew Coutu, John Hershey, Jo Recht, Roy Jackson, Mark Selfridge, Christian Maynard-Philipp, Kathie Garcia, Nancy O'Halloran, Angela Schaffer, Ben Mahon, Mike Mueller, Dana Millican, Lauren Guy
- Consultants Present: David Fann and Tom Martin (TorreyCove); Allen Emkin and Christy Fields (PCA); Janet Becker-Wold, Uvan Tseng and James Callahan (Callan)
- Legal Counsel Present: Dee Carlson, Oregon Department of Justice

The October 26th, 2016 OIC meeting was called to order at 9:03 am by Rex Kim, OIC member.

Ms. Adams joined the meeting at 9:04am.

I. **9:04 am Review and Approval of Minutes**

MOTION: Mr. Russell moved approval and Ms. Durant seconded a motion to approve both the September 14, 2016 OIC meeting minutes and the September 30, 2016 joint PERS/OIC meeting minutes. That motion passed by a 4/0 vote.

Committee Reports

John Skjervem, OST Chief Investment Officer gave an update on the following committee actions taken since the September 14, 2016 OIC meeting:

Private Equity Committee:

None

Alternatives Portfolio Committee:

September 29, 2016	Starwood Energy Infrastructure Fund III	\$150 million
September 29, 2016	Homestead Capital USA Farmland Fund II LP	\$100 million

Opportunity Portfolio Committee:

September 29, 2016 Lone Star Fund X

\$150 million

Real Estate Committee:

None

II. 9:05 am General Consultant Recommendation – OPERF

Karl Cheng, Investment Officer, Portfolio Risk & Research addressed the OIC's general consulting contracts with Callan Associates Inc. (Callan) and Pension Consulting Alliance LLC (PCA), both of which expire on December 31, 2016.

Mr. Cheng explained staff's proposal that the OIC extend its current contracts with both Callan and PCA, subject to existing terms and conditions, for an additional two-year period beginning January 1, 2017 and ending December 31, 2018.

MOTION: Mr. Russell moved approval of the staff recommendation. Mr. Kim seconded the motion, which then passed by a 4/0 vote.

III. 9:06 am MBK Partners IV, L.P. – OPERF Private Equity Portfolio

Michael Langdon, Senior Investment Officer, Private Equity recommended approval of a \$200 million commitment to MBK Partners Fund IV, L.P. ("Fund IV" or the "Fund") for the OPERF Private Equity portfolio, subject to the satisfactory negotiation of all terms and conditions with Staff working in concert with legal counsel. This proposed commitment would establish a new general partner relationship with MBK Partners. Mr. Langdon then introduced Mr. Michael ByungJu Kim, Partner, MBK Partners and Mr. Tae Hyun Park, Partner, MBK Partners who had traveled from South Korea to provide the Council with a presentation on the Fund, their firm and their firm's strategy.

MBK Partners ("MBK" or the "Firm") is forming the Fund to target control-oriented investments in Korea, Japan and Greater China (collectively, "North Asia"). Mr. Kim and four additional founding partners created the Firm in April 2005. The founding partners, who spun out of Carlyle Asia Partners and Carlyle Japan Partners, have now worked together for an average of 17 years. MBK has supplemented these partners with 33 additional investment professionals operating from offices in Seoul, Tokyo, Shanghai and Hong Kong. Each country team is entirely comprised of individuals native to their respective markets. MKB has invested \$4.2 billion of capital in 24 transactions across their first three funds, while also generating an additional \$4.4 billion of co-investment.

Since 2005, MBK has raised over \$5.7 billion across three prior funds. The Firm is now targeting \$3.5 billion for Fund IV, with a \$4.0 billion stated hard cap.

MOTION: Ms. Durant moved approval of the staff recommendation. Mr. Russell seconded the motion which then passed by a vote of 4/0.

IV. 9:50 am AQR Managed Futures Strategy – OPERF Alternatives Portfolio

Ben Mahon, Senior Investment Officer, Alternatives, Karl Cheng and Callan recommend a \$250 million commitment to the AQR Capital Management Managed Futures Strategy for the Diversifying Strategies sleeve of the OPERF Alternatives Portfolio, subject to the satisfactory negotiation of terms and conditions with Staff working in concert with legal counsel. Mr. Mahon introduced Yao Hua Ooi, Principal, AQR Capital Management, LLC who gave an introduction to futures-based investment strategies and discussed AQR's unique approach in this area.

AQR Capital Management ("AQR" or the "Firm") was established in 1998 by Cliff Asness and several other members of Goldman Sachs Asset Management. Although the Firm now manages investment products across the asset class spectrum, the common thread running throughout AQR's strategies is a

systematic, model-driven approach towards asset allocation and security selection that is grounded in fundamental economic principles and supported by contemporary, empirical research. The Firm has become one of the largest global managers of alternative assets, with total assets under management (AUM) of \$159.2 billion, split between traditional equities (\$69.4 billion) and alternatives (\$89.9 billion).

The OIC/OST relationship with AQR dates back to 2006 with a U.S. small cap value mandate in the OPERF Public Equities Portfolio. Alternatives Portfolio investments with AQR date back to 2011, when OIC committed \$100 million of OPERF capital to the AQR DELTA Fund ("DELTA"). The OIC made a subsequent \$200 million Alternatives Portfolio commitment to the AQR Style Premia Fund ("SPF") in 2013. Along with an additional \$750 million commitment, both DELTA and SPF were consolidated into the Oregon Strategic Partnership in 2015.

MOTION: Ms. Durant moved approval of staff recommendation, and Mr. Kim seconded the motion which then passed by a vote of 3/1. Mr. Russell cast the dissenting vote.

V. 10:55 am Public Equity Review – OPERF Public Equity Portfolio

Michael Viteri, Senior Investment Officer, Public Equity, and Paola Nealon, Investment Officer, Public Equity along with Janet Becker-Wold and Uvan Tseng from Callan Associates provided the Council with an annual review of the Oregon Public Employees Retirement Fund (OPERF) Public Equity portfolio.

VI. 11:21 am Public Equity Restructuring – OPERF Public Equity Portfolio

Mr. Viteri presented staff's recommendation to restructure 25% of the OPERF Public Equity portfolio in the form of a Low Volatility strategies sleeve. Mr. Viteri said that staff believes a 25 percent allocation to Low Vol strategies was projected to result in OPERF Public Equity portfolio risk dropping by approximately 10 percent (from 15.33% to 14.05%). In addition, risk at the total OPERF level was also projected to drop a meaningful amount (from 11.71% to 11.24%).

Recommendation:

1. Staff and Callan recommend funding Arrowstreet, Acadian, AQR and Los Angeles Capital Management with approximately \$750 mm - \$800 mm each to populate a dedicated Low Vol sleeve within the OPERF Public Equity portfolio; and
2. Amend OIC policy INV 601 (Public Equity Investments: Strategic Role of Public Equity Securities within OPERF) accordingly.

MOTION: Mr. Russell moved approval of the staff recommendations, and Mr. Kim seconded the motion which then passed by a vote of 4/0.

VII. 12:17 pm International Risk Premia Strategy – OPERF Public Equity Portfolio

Staff has successfully managed select public equity strategies since 2009. As of September 30, 2016, internally-managed public equity AUM totaled approximately \$5.2 billion, representing 19 percent of OPERF's \$26.1 billion global public equity portfolio. Since inception, all internally-managed public equity mandates have outperformed their assigned benchmarks.

Mr. Viteri recommend funding a \$1.2 billion internally-managed World X-U.S. Risk Premia strategy within the OPERF Public Equity Portfolio and amending OIC policy VIN 603 (Internal Equity – Portfolio Objectives & Strategies) accordingly.

MOTION: Ms. Durant moved approval of the staff recommendations, and Mr. Kim seconded the motion which then passed by a vote of 4/0.

VIII. 12:22 pm CEM Benchmarking Report – OPERF

Beginning in 2003, Treasury staff provided the OIC with an independent assessment of the various costs incurred for OPERF management (e.g., asset management, custody and consulting fees), and how those costs and resultant net OPERF performance compare with other institutional investors.

CEM is recognized as the foremost, independent, third-party provider of cost analysis to defined benefit and defined contribution plans. Using the firm's unique database, CEM has provided defined benefit fund sponsors with net return and cost insights since 1990. That database includes 162 pension funds (including 55 U.S. public funds), valued at approximately \$3.2 trillion.

Bruce Hopkins, Vice President at CEM Benchmarking, Inc. (CEM) presented his firm's analysis of OPERF investment returns and costs for both the calendar year and five-year period ended December 31, 2015.

IX. 12:38 pm Asset Allocation & NAV Updates

Mr. Skjervem reviewed asset allocations and NAVs across OST-managed accounts for the period ended September 30, 2016.

X. 12:38 pm Calendar – Future Agenda Items

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

XI. 12:38 pm Other Items

None

12:40 pm Public Comments

Mr. Michael Pineschi, Researcher with UniteHere! and two homeowners, Ms. Sandra Cohen and Ms. Yvette Riviere from Baltimore, MD, provided public comment regarding Oaktree Capital Management and its residential mortgage investment activities.

Ms. Adams adjourned the meeting at 12:50 pm.

Respectfully submitted,

May Fanning

May Fanning

Executive Support Specialist

TAB 2 – JPMCB Strategic Property Fund
OPERF Real Estate Portfolio

JPMCB Strategic Property Fund

Purpose

Subject to the satisfactory negotiation of all terms and conditions with Staff working in concert with legal counsel, Staff recommends approval of an up to \$300 million commitment to JPMCB Strategic Property Fund (“SPF” or the “Fund”) for the OPERF real estate portfolio. This proposed commitment represents a new relationship with JP Morgan Investment Management (“JPMIM”) for the real estate Staff.

Background

Founded in 1799 by J. Pierpont Morgan, JPMorgan Chase & Co. (“JPM”) is a financial services institution with global capabilities across a wide range of products and services for both retail and institutional clients. As a publicly-traded firm with approximately \$2.4 trillion of assets under management at December 31, 2015, JPM is a global leader in asset management, investment banking, consumer finance, small businesses and commercial banking, financial transaction processing, and private equity. SPF falls under JPMIM, a SEC-registered investment advisor, and is managed by the Global Real Assets (“GRA”) division within the JP Morgan Asset Management (“JPMAM”) business line. Headquartered in New York City and with 441 real assets professionals, GRA has a presence in seven U.S. cities, as well as Europe, Hong Kong, Singapore, China and India. SPF, with a dedicated team of 14 professionals, traces its origins to 1970 and GRA’s first actively-managed, open-ended core fund. SPF was added to the NCREIF Fund Index – Open-Ended Diversified Core Equity Index (“NFI-ODCE Index”) in 1998 when its predecessor fund was split into core (SPF) and value-add (Special Situations Property Fund) fund offerings.

The selection of SPF for OPERF’s real estate portfolio was the result of a robust analysis during which Staff 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 bear or bull market conditions, while also comparing volatility, Sharpe ratios and standard deviation to the index.

Strategy

SPF is an Open-Ended Diversified Core Equity (ODCE) fund, and, at \$42 billion GAV (\$31 billion NAV), is the largest fund within the NFI-ODCE Index comprising approximately 18% of current index capitalization. The objective of SPF is to outperform the NFI-ODCE Index through active asset management and discretionary geographic and sector selections. JPMIM invests Fund capital in high-quality stabilized office, retail, residential and industrial assets with dominant competitive characteristics in primary markets that possess attractive demographics throughout the United States. Target properties for SPF have demonstrated high occupancy rates capable of delivering the majority of total return from operating cash flows over their respective hold periods.

JPMIM will not invest Fund capital in higher risk sectors such as hospitality, assisted living, self-storage, etc. Value-added activities within SPF are limited to 15% of the Fund’s GAV. GRA personnel selectively capitalize on development opportunities in order to gain entry to or extend the Fund’s presence in key markets with high quality assets; however, the Fund’s total development exposure will not exceed a 5% of GAV maximum development guideline.

SPF is a mature, diversified fund that has been a part of the NFI-ODCE Index since 1998. With Fund capital, JPMIM pursues both income and appreciation by investing across various property types and geographies to create a well-diversified portfolio of high-quality assets. SPF’s relatively large size enables broad diversification across all sectors and geographic regions with a focus on acquiring big, Class A assets in primary markets that have historically displayed less tenant demand volatility and higher levels of

liquidity through market cycles than secondary or tertiary assets and market locations. JPMIM is focused on assembling a real property portfolio that generates a total return premium in excess of the NFI-ODCE Index over a full market cycle. Moreover, the Fund's scale and diversification profile should mitigate the potential adverse effects of a regional or property-specific downturn.

Issues to Consider

Attributes:

- *Asset size / portfolio attributes:* JPMIM actively targets larger asset sizes, especially within the office and retail sectors, with an average asset size of \$229 million versus the peer group average of \$60 million. Market research has shown that over long hold periods, larger assets exhibit higher returns while exhibiting less volatility and above-market occupancy rates, particularly during recessionary periods. This asset exposure is highly complementary to OPERF's separate account programs that typically cannot invest in such large-scale real estate opportunities.
- *Existing asset pool with ODCE governance:* A commitment to SPF would provide OPERF immediate and transparent exposure to an existing portfolio of well-diversified, income-producing, core real estate assets, which Staff was able to underwrite at detailed levels of return attribution. Further, as a NFI-ODCE Index participant, the Fund's strategy operates within pre-defined parameters and governance rules that all member funds must adhere to, thereby reducing the inherent risks of a blind-pool commitment as well as the potential style-drift associated with less-defined and higher risk strategies and/or structures.
- *Alignment with OPERF Real Estate Strategic Plan:* As an open-ended investment vehicle focused on long-term growth and deriving upwards of 80-90% of its returns from recurring income, a commitment to SPF is strategically aligned with the broader portfolio objectives of reducing return volatility and seeking inflation-protected real estate characteristics via exposures to high quality, income-producing assets.
- *Top-quartile performance:* SPF has outperformed the NFI-ODCE Index over the trailing five- and ten-year periods. This outperformance has, in large part, been driven by JPMIM's investment discipline to maintain long-term holds, which average seven to ten years, in addition to asset selection weighted in favor of high-quality assets with durable income streams.
- *Team continuity:* The JPMIM investment management team has average JPMAM tenure and industry experience of 19 years and 27 years, respectively.
- *Largest NFI-ODCE Index fund:* Staff's goal of investing in a sub-portfolio of ODCE funds is to exceed index returns with minimal volatility over a long-term horizon. An investment in SPF provides an exposure that represents nearly one-fifth of the OPERF real estate portfolio's benchmark.

Concerns:

- *Lack of direct individual co-invest:* In order to maintain SPF's status as an ERISA-compliant fund, JPM and its employees are precluded from investing directly in SPF ownership shares. [Mitigant: JPM has formal policies in place for long and short-term employee incentive compensation. Specifically, portfolio managers are compensated based on actual SPF performance against the benchmark for one-, three- and five-year periods while, for asset managers, actual operating results are evaluated versus budget.]
- *Passive investment vehicle:* Without an advisory board, investments within ODCE funds, including SPF, generally offer a lower level of active oversight and engagement for investors than the typical closed-end fund. [Mitigant: Unlike closed-end fund structures with contract terms defined by the general partner, NFI-ODCE funds adhere to a uniform set of rules defined by participation within the NFI-ODCE Index. Investors can be assured of a homogenous set of governance and

investment parameters across all ODCE funds, thereby minimizing the need for an advisory board and additional governance rights for investors.]

- *Imperfect liquidity:* Consistent with other ODCE funds, investors can make redemption requests from JPMIM on a quarterly basis. However, liquidity is available only upon management's discretion, and JPMIM is not *required* to liquidate assets to fulfill redemption requests. [Mitigant: Historically, larger ODCE funds have been able to provide redemption-related liquidity more readily than smaller funds.]

Terms

SPF management fees are generally consistent with the NFI-ODCE Index peer group. Based on a tiered fee structure favoring larger investor commitments, and without incentive, acquisition, or disposition fees, the overall SPF fee load is well below market terms for closed-end, private equity real estate funds. In addition, no placement agent had contact with Staff in connection with this commitment recommendation.

Conclusion

SPF represents an opportunity to invest in an existing pool of core real estate assets that are stabilized, income-producing, modestly-leveraged, and well-diversified by property type, market, tenant type, lease duration, and debt maturity. With an open-ended structure, the Fund allows for a level of liquidity not generally available within private real estate partnerships. Managed by a deep team with a track record of outperformance relative to its index, SPF simultaneously provides immediate access to a significant component of the OPERF real estate portfolio's benchmark (NFI-ODCE Index) and is in-line with that portfolio's long-term goal of achieving strong, risk-adjusted returns primarily through durable income streams.

TAB 3 – EQT Infrastructure Fund III
OPERF Alternatives Portfolio

EQT Infrastructure III (No. 2) SCSp

Purpose

Staff and TorreyCove recommend a €200 million commitment to EQT Infrastructure III (No. 2) SCSp (“EQT Infra III” or the “Fund”) for the OPERF Alternatives Portfolio, subject to the satisfactory negotiation of terms and conditions with Staff working in concert with legal counsel. This proposed commitment represents a new general partner relationship on behalf of the OPERF Alternatives Portfolio.

Background

EQT Partners (“EQT” or the “Firm”) is a global alternative asset manager formed in 1994. With origins in the Swedish Wallenberg family, the Firm is rooted in a long industrial heritage, and applies the same strategic investment concepts across the organization. Since inception, EQT has raised approximately €30 billion of capital commitments in 20 funds across three overall investment strategies: real assets; private capital; and credit, with EQT infrastructure falling under the real assets investment strategy.

The Fund is a continuation of the investment strategy previously deployed in EQT Infrastructure I (“EQT Infra I”), a €1.2 billion infrastructure fund that held its final closing in 2008, and EQT Infrastructure II (“EQT Infra II”), a €1.9 billion infrastructure fund that held its final closing in 2013. EQT is seeking €2.9 billion of capital commitments for the Fund, with a €4.0 billion hard cap. The Firm plans to hold a first close on or around November 23, 2016.

Discussion/Investment Considerations

Consistent with its history, EQT will focus on high-quality, value-add infrastructure investments, primarily in the energy, transport, environmental, telecom, and social sectors. The Firm will focus on geographies where EQT has a physical presence, namely Northern Europe, Continental Europe, and North America. In executing the EQT Infra III investment strategy, the Firm will follow established principles, focusing on creating value through the implementation of its “industrial approach.” EQT is differentiated by its local investment teams and an established network of more than 250 independent industrial advisors. To execute its investment strategy, EQT seeks sufficient influence over its investments through control or co-control positions. The Firm expects to focus on middle-market investments of €50-300 million across 14 to 18 portfolio companies.

Attributes:

- *Experienced team.* EQT Infra III investment strategy will be led by Deputy Managing Partner Lennart Blecher along with a team of six additional partners. Of note, the EQT infrastructure partners have an average of 18 years’ infrastructure investment experience from various regions around the world, and all have been part of the EQT infrastructure team since 2008. In total, the infrastructure team is comprised of 37 investment professionals operating out of five offices in Stockholm, Munich, Zurich, Madrid, and New York.
- *Industrial advisor network.* EQT works closely with a network of more than 250 independent industrial advisors, sharing strategic and operating insights in deal sourcing, due diligence, and advice through directorships. The network consists of current and former operating executives from large international corporations as well as successful entrepreneurs from a variety of industries. This network, coupled with the breadth of experience of the infrastructure team, provides EQT with the capabilities to evaluate the widest possible set of opportunities on behalf of the Fund.
- *Market opportunity.* The historical underinvestment in infrastructure, along with macroeconomic trends of growing populations and urbanization, has resulted in substantial and often imperative investment requirements in both Europe and North America. At the same time, traditional suppliers of infrastructure capital, such as governments and utilities, continue to face capital constraints. EQT expects continued high corporate asset disposal activity among relevant companies, which will be

driven by an enhanced focus on core operations, financing restrictions, and a need to reduce balance sheets. Thus, Staff believes the target opportunity set for EQT's strategy is very attractive.

- *Portfolio fit.* Although not a "European fund," approximately 50% of prior investments have been in Continental or Northern Europe and Europe has been the highest-returning geography of both EQT Infra I and EQT Infra II portfolios. The Firm's middle-market focus and heavy weighting to Europe complements OPERF's existing infrastructure portfolio, which is currently tilted toward larger infrastructure assets and North American strategies.
- *Strong interim results.* To date, EQT Infra I and II have distributed approximately €3 billion to investors, primarily as a result of eight exits. On an aggregate level, these exits have yielded a gross multiple of invested capital of 3.4x and a gross IRR of 35%.

Concerns:

- *Competitive market for investment opportunities.* Interest from institutional investors in real assets, including infrastructure strategies, remains high. As more capital enters the market for private infrastructure, expected returns may decline. [Mitigant: Staff has confidence in EQT's financial discipline and expertise in originating, structuring, and executing infrastructure transactions. Overall, the market for middle-market infrastructure capital is small and the Firm will likely face an equally small universe of competing capital.]
- *EQT Infra III increase.* EQT Infra III represents a substantial increase in capital commitments relative to EQT Infra II. Such increases in assets under management may result in a deviation from stated objectives, i.e., "style drift," as well as create strains on organizational infrastructure. [Mitigant: The Fund is subject to restrictions on the size and type of investments, limiting the potential impacts on investment approach. Furthermore, the Firm has been steadily hiring ahead of the EQT Infra III launch, growing to a team of 49, which includes 37 investment professionals.]
- *Foreign currency exposure.* The Fund will be denominated in Euros with investments likely made and realized in local currency. Fluctuations in exchange rates may have an adverse effect on the value of investments. [Mitigant: Due to the long investment horizon, currency risk is not expected to be a material component of total return.]
- *Political/regulatory risks.* The political and regulatory environment for infrastructure is evolving and changes therein may have an adverse effect on the Firm's ability to pursue its investment strategy. [Mitigant: All investments in the infrastructure sector are subject to the aforementioned risks. Staff finds the risk/reward tradeoff to be reasonable and supported by: a) the team's experience and technical expertise; b) the Fund's proposed asset diversification; and, c) the Fund's likely geographic focus on Northern/Continental Europe and North America.]

Terms

Fund terms include a management fee on committed capital with a carry and preferred return structure (please see TorreyCove investment memo for complete details). The Fund will have a six-year investment period and 12-year term, subject to three, one-year extension options at the election of the general partner (but subject to the consent of a limited partner majority). During fundraising efforts, no placement agent had contact with Treasury Staff.

Conclusion

The Alternatives Portfolio target allocation to infrastructure investments is 25%, with a range of 20% to 30%, or approximately \$2.2 billion at current OPERF NAV. To date, OIC has approved \$2.5 billion in aggregate commitments to the sector, with \$1.1 billion in current NAV. Staff considers EQT Infra III an anchor commitment within the OPERF infrastructure portfolio.

Staff also believes EQT Infra III represents an opportunity to invest with an experienced manager in an attractive sector. EQT is a focused investor with expertise across the spectrum of infrastructure investments and has a deep network of industry relationships. Moreover, EQT is differentiated by its value-add strategy, European weighting, and middle-market focus. At a macro level, requirements for infrastructure investment are massive, underpinning positive demand dynamics for capital, and Staff believes EQT is well positioned to capitalize on the Fund's target opportunity set.



MEMORANDUM

TO: Oregon Public Employees Retirement Fund (“OPERF”)
FROM: TorreyCove Capital Partners (“TorreyCove”)
DATE: November 23, 2016
RE: EQT Infrastructure III, L.P. (the “Fund”)

Strategy:

EQT Infrastructure Fund III will pursue the same strategy as its predecessor funds focusing on control opportunities in mid-sized operating infrastructure companies and/or assets with limited development and construction risk across North America, Continental Europe, and Nordic region. The Fund is looking to deploy €50.0 million to €300.0 million of equity in 14 to 18 investments across five key sectors: Transport & Logistics, Energy, Environmental, Telecom, and Social. Targeted investments will have infrastructure characteristics including but not limited to providing an essential service to society, being resilient against economic downturns, stable and protected cash flows. EQT will pursue corporate carve-outs of orphaned assets, government privatizations, and acquisition of stand-alone infrastructure assets/companies. Additionally, investments should demonstrate the potential for value creation through growth and operational initiatives.

Please see attached investment memorandum for further detail on the investment opportunity.

Conclusion:

The Fund offers OPERF an opportunity to participate in a differentiated portfolio of private investments with relatively attractive overall terms. TorreyCove’s review of the General Partner and the proposed Fund indicates that the potential returns available justify the risks associated with an investment in the Fund. TorreyCove recommends that OPERF consider a commitment of €250.0 million¹ to the Fund. TorreyCove’s recommendation is contingent upon the following:

- (1) Satisfactory negotiation or clarification of certain terms of the investment;
- (2) Satisfactory completion of legal documents;
- (3) Satisfactory continuation and finalization of due diligence;
- (4) No material changes to the investment opportunity as presented; and
- (5) Confidentiality maintained regarding the commitment of OPERF to the Partnership until such time as all the preceding conditions are met.

¹ Equates to approximately \$263.9 million based on the 11/23/16 exchange rate of 1.0555 USD/EUR.

TAB 4 – Fixed Income Program Review
OPERF Fixed Income Portfolio



OPERF Fixed Income Portfolio 2016 Review

Tom Lofton, CFA

December 2016

Agenda

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LEGEND: OIC INVESTMENT AND MANAGEMENT BELIEFS

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

- A. The OIC is a policy-setting council that largely delegates investment management activities to the OST and qualified external fiduciaries.
- B. The OIC has authority to set and monitor portfolio risk. Both short-term and long-term risks are critical.
- C. To exploit market inefficiencies, the OIC must be contrarian, innovative and opportunistic in its investment approach.
- D. Internal incentive structures should be carefully evaluated to ensure proper alignment with specific investment objectives.
- E. Adequate resources are required to successfully compete in global capital markets.

2 ASSET ALLOCATION DRIVES RISK AND RETURN

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

3 THE EQUITY RISK PREMIUM WILL BE REWARDED

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

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

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

5 CAPITAL MARKETS HAVE INEFFICIENCIES THAT CAN BE EXPLOITED

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

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

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

7 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.
- B. The OIC also recognizes that voting rights have economic value and therefore must be treated as a fund or beneficiary asset.



I. Fixed Income Policy and Performance Review

Fixed Income Policy and Performance

INV 401: Strategic Role of Fixed Income for OPERF

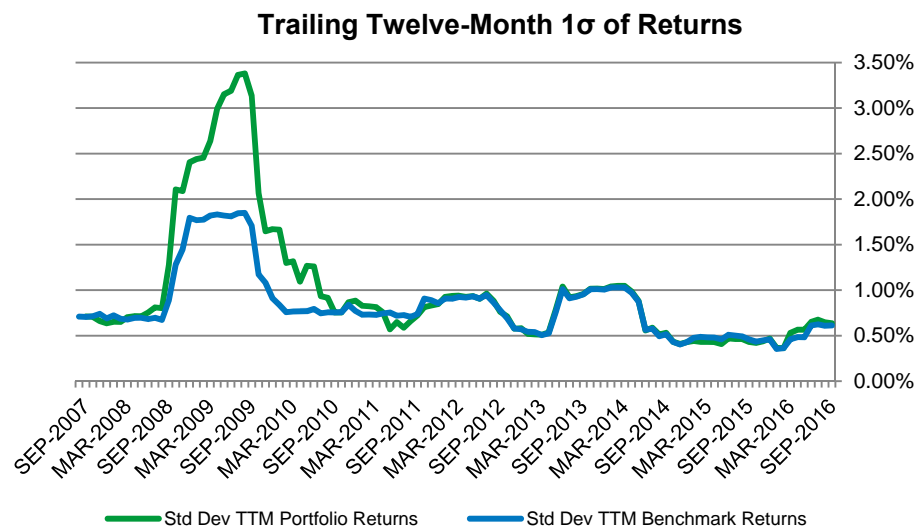
POLICY

The strategic role of fixed income investments is to provide diversification to the Oregon Public Employees Retirement Fund (OPERF) portfolio in general and its allocation to equity securities in particular. Fixed income investments also provide liquidity to help meet OPERF's cash flow requirements. Fixed income investments are subject to specific, strategic asset allocation targets established by the Oregon Investment Council and described in Policy 4.01.18.

POLICY OBJECTIVES

- Over a market cycle of three to five years and on a net-of-fee basis, achieve a fixed income portfolio return of at least 35 basis points above the custom policy benchmark which is currently comprised as follows: 37% Barclays U.S. Treasury Index; 46% Barclays Capital U.S. Aggregate Bond Index; 13% S&P/LSTA Leveraged Loan Index; and 4% Bank of America Merrill Lynch High Yield Master II Index. The fixed income portfolio is also expected to achieve top quartile performance in a peer group comprised of other public and corporate pension funds with total assets greater than \$1 billion.
- Limit fixed income portfolio risk, as measured by the standard deviation of returns, to a level not to exceed that of the custom benchmark.

Fixed Income Performance - October 31, 2016								
	YTD	1 Year	2 Year	3 Year	4 Year	5 Year	7 Year	10 Year
Total Fixed Income	4.88	3.92	2.65	2.87	2.71	4.09	5.49	5.55
Benchmark	4.41	3.48	2.29	2.41	2.18	3.38	4.04	4.61
Excess	0.47	0.44	0.36	0.46	0.53	0.71	1.45	0.94
Core	5.79	5.12	3.67	4.08	3.09	4.25	5.46	5.51
Benchmark	4.99	4.37	3.16	3.51	2.48	3.40	4.32	4.81
Excess	0.80	0.75	0.51	0.57	0.61	0.85	1.14	0.70
Government	1.16	0.95	0.98					
Benchmark	1.47	1.14	1.00					
Excess	-0.31	-0.19	-0.02					
Below Investment Grade	8.84	6.63	3.77	4.16	5.17	6.39	7.50	
KKR Credit	8.44	6.33	3.40	4.04	5.23	6.54	7.98	
Benchmark	11.05	7.81	3.63	3.83	4.52	5.62	6.57	
Excess	-2.61	-1.48	-0.23	0.21	0.71	0.92	1.41	
Oak Hill Advisors Credit	9.45	7.08	4.35	4.33	5.04	6.11	6.60	
Benchmark	9.65	7.08	3.53	3.60	4.18	5.16	5.99	
Excess	-0.20	0.00	0.82	0.73	0.86	0.95	0.61	



Source: State Street; Oregon State Treasury.



II. Fixed Income 2016 Transition

Reviewing Changes within the Fixed Income Portfolio

In 2015, the OIC approved staff recommendation to change Fixed Income strategy exposures to improve diversification versus OPERF's otherwise large allocation to risk-based assets (i.e., Public Equity, Private Equity, Real Estate and Alternatives).

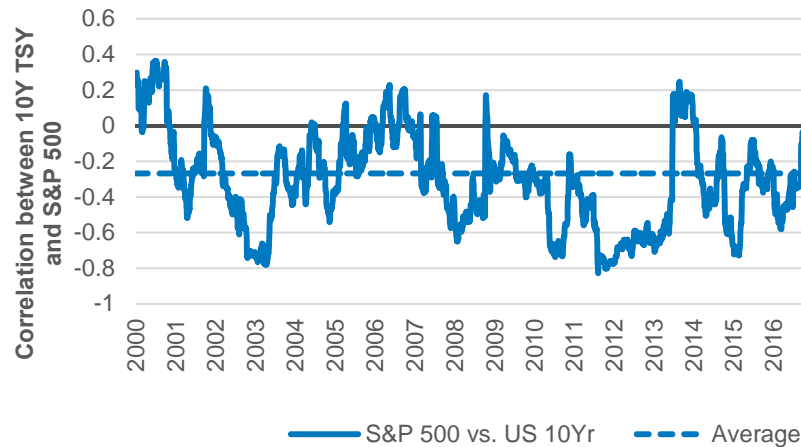
Fixed Income target allocations were revised to moderate volatility at the OPERF level.

Staff recommendations were based upon the premise that over the long run, interest rates are negatively correlated with equity markets, while returns due to changes in credit spreads are positively correlated with equity returns.

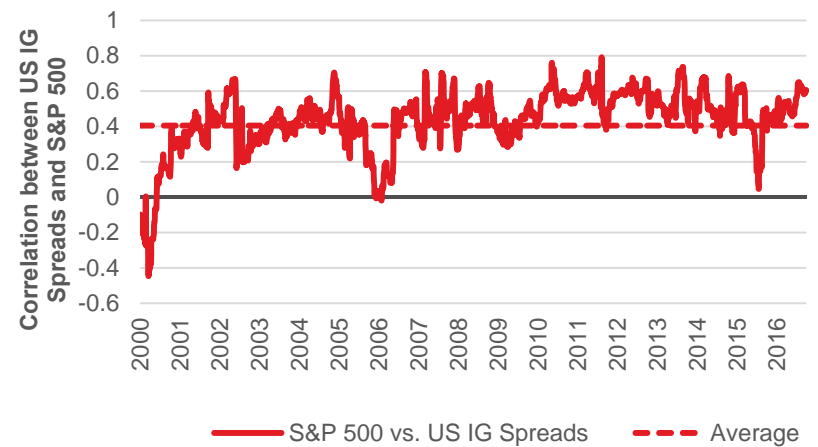
- Average correlation between 10-Year Treasury rate and S&P 500 since 2000 is -0.27
- Average correlation between U.S. Investment Grade (IG) spreads and S&P 500 since 2000 is +0.40

Correlations are not stable over the short term and have direct implications on short-term OPERF volatility.

Correlation between 10-Year U.S. Treasury and S&P 500
January 1, 2000 through September 30, 2016



Correlation between U.S. IG spreads and S&P 500
January 1, 2000 through September 30, 2016



Source: BlackRock; Aladdin Portfolio Risk Tools.

Reviewing Changes within the Fixed Income Portfolio

- 47% of YE15 Fixed Income NAV (\$7.01 Billion) re-allocated:
 - Re-allocated Short Term High Quality (“STHQ”) portfolio to a new Government sleeve in February (33% of YE15 NAV);
 - Reduced Below Investment Grade (“BIG” or “Non-Core”) allocation by \$1.7 billion (39% of YE15 BIG balance with another 8% pending); and
 - Provided \$1.05 billion for Alternatives Portfolio funding.
- Investment Management Agreements updated for Government and Core managers.

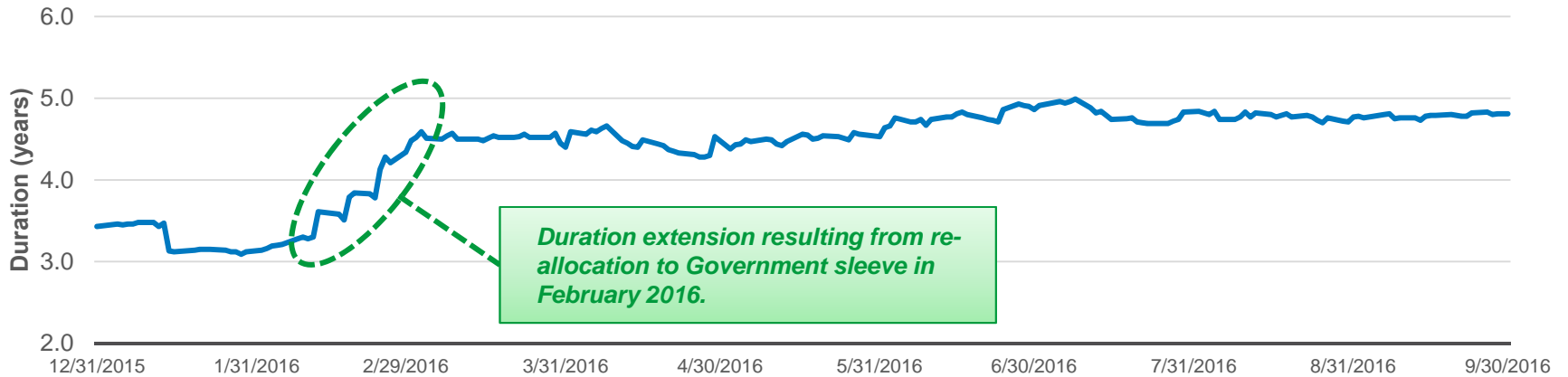
2016
Implementation
Progress

Strategy	Target Allocation				10/31/2016			
	Prior		Current		Market Value (000)	Percent		Capital Markets
Fixed Income	OPERF	Fixed Income	OPERF	Fixed Income		OPERF		
Short Term High Quality	40.0%	8.0%						
Government			37.0%	7.4%	5,083,600	35.1%	7.4%	12.3%
Core	40.0%	8.0%	46.0%	9.2%	6,350,794	43.8%	9.3%	15.4%
Below Investment Grade	20.0%	4.0%	17.0%	3.4%	3,064,380	21.1%	4.5%	7.4%
OPERF Fixed Income	100.0%	20.0%	100.0%	20.0%	14,498,774	100.0%	21.2%	35.1%

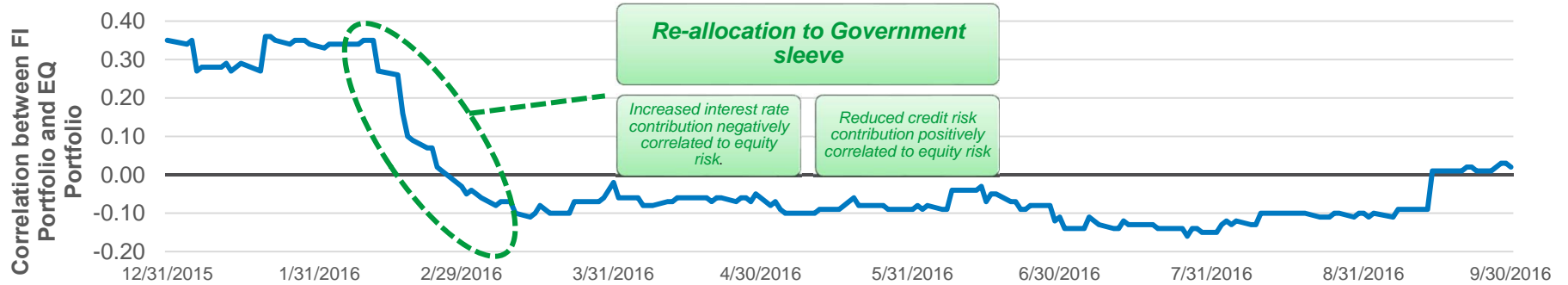
Source: State Street; Oregon State Treasury.

Reviewing Changes within the Fixed Income Portfolio

Fixed Income Portfolio Interest Rate Duration Year-to-Date



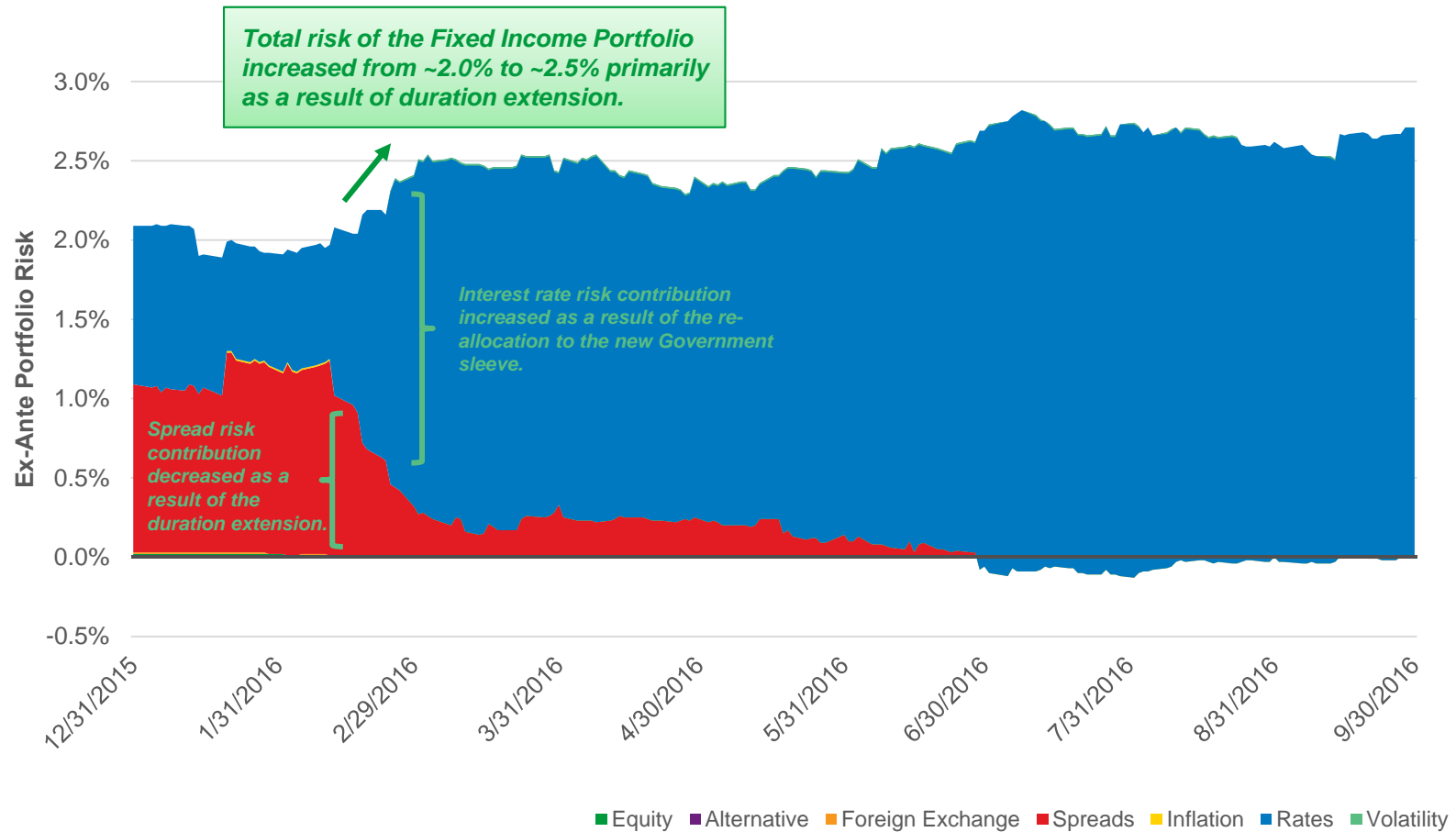
Correlation between Fixed Income Portfolio and Public Equity Portfolio Year-to-Date



Source: BlackRock; Aladdin Portfolio Risk Tools. As of September 30, 2016.

Reviewing Changes within the Fixed Income Portfolio

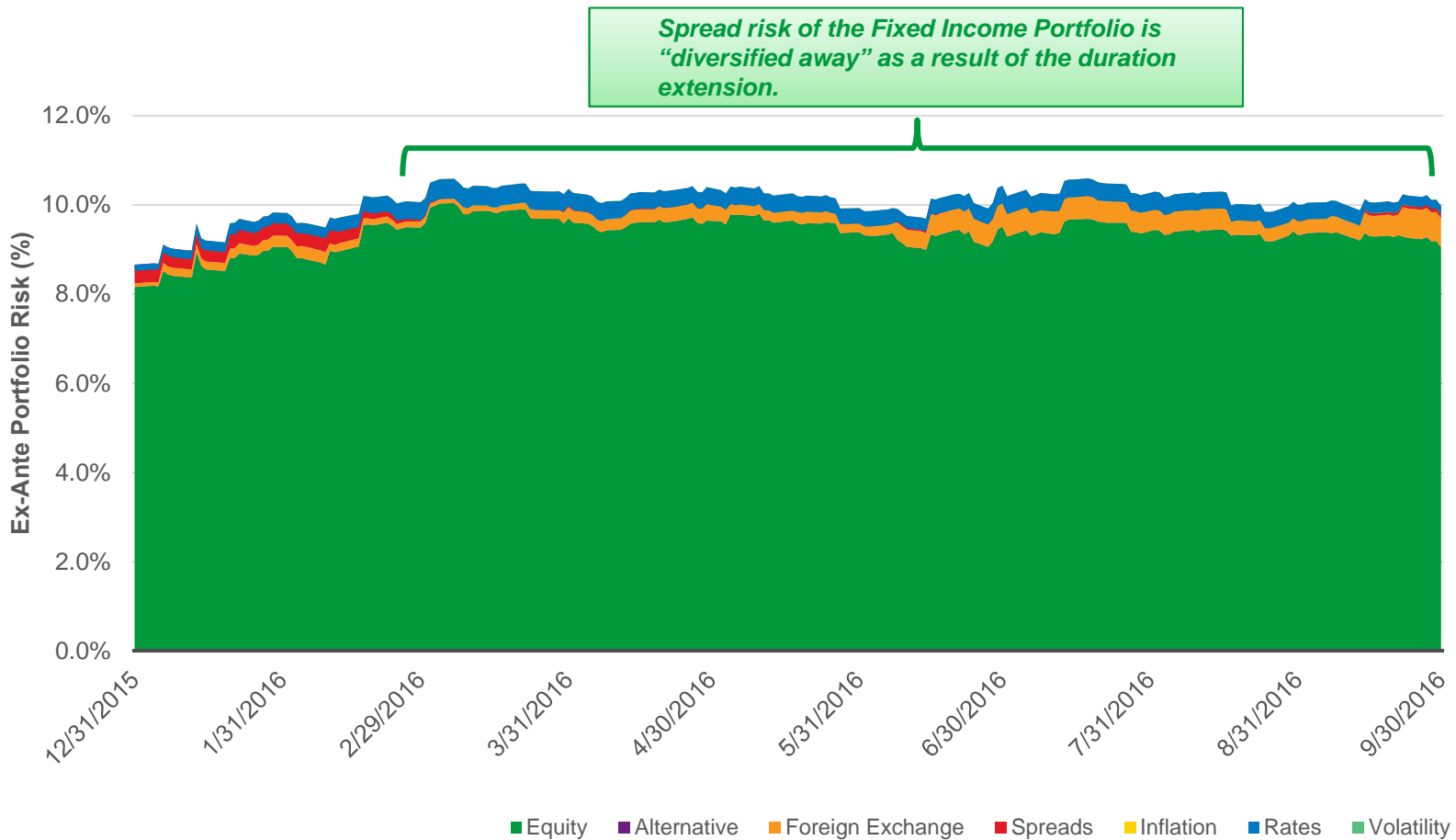
Fixed Income Portfolio Ex-Ante Portfolio Risk Year-to-Date



Source: BlackRock; Aladdin Portfolio Risk Tools. As of September 30, 2016.

Reviewing Changes within the Fixed Income Portfolio

Capital Markets Program Ex-Ante Portfolio Risk Year-to-Date



Source: BlackRock; Aladdin Portfolio Risk Tools. As of September 30, 2016.



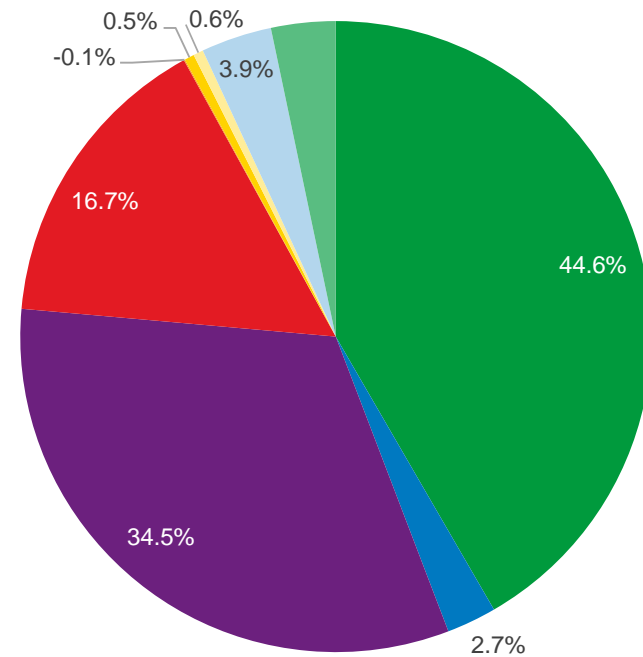
III. Current Fixed Income Portfolio Overview

Current Fixed Income Portfolio Overview

Asset Class Breakdown

Portfolio Breakdown			
September 30, 2016			
	Portfolio (% NAV)	Benchmark (% NAV)	Active (% NAV)
Treasuries	44.6%	53.7%	-9.1%
Government-Related	2.7%	3.7%	-0.9%
Corporates	34.5%	28.9%	5.6%
Securitized	16.7%	13.7%	3.0%
Derivatives	-0.1%	0.0%	-0.1%
Funds	0.5%	0.0%	0.5%
Equity	0.6%	0.0%	0.6%
Cash Securities	3.9%	0.0%	3.9%
Cash	-3.5%	0.0%	-3.5%
Portfolio NAV	100.0%	100.0%	

Portfolio Breakdown by Asset Class

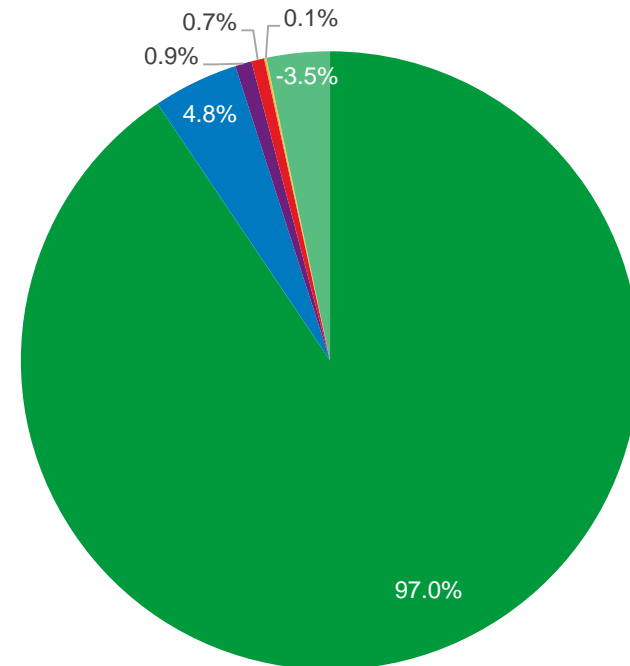


Current Fixed Income Portfolio Overview

Country Breakdown

Portfolio Breakdown			
September 30, 2016			
	Portfolio (% NAV)	Benchmark (% NAV)	Active (% NAV)
Dollar Bloc	97.0%	95.9%	1.1%
United States	94.7%	94.7%	0.0%
Canada	0.9%	1.0%	-0.1%
Australia	0.1%	0.2%	-0.1%
Euro Bloc	4.8%	2.4%	2.4%
Belgium	0.1%	0.1%	0.0%
France	0.5%	0.2%	0.4%
Germany	0.2%	0.4%	-0.2%
Norway	0.0%	0.0%	0.0%
Sweden	0.1%	0.1%	0.1%
United Kingdom	1.6%	0.6%	1.0%
Asia Bloc	0.9%	0.3%	0.6%
Japan	0.8%	0.1%	0.6%
South Korea	0%	0.1%	-0.1%
Latin America Bloc	0.7%	0.5%	0.2%
Middle East Bloc	0.0%	0.0%	0.0%
Oceania Bloc	0.1%	0.0%	0.0%
Cash	-3.5%	0.0%	-3.5%
Portfolio NAV	100.0%	100.0%	

Portfolio Breakdown by Country

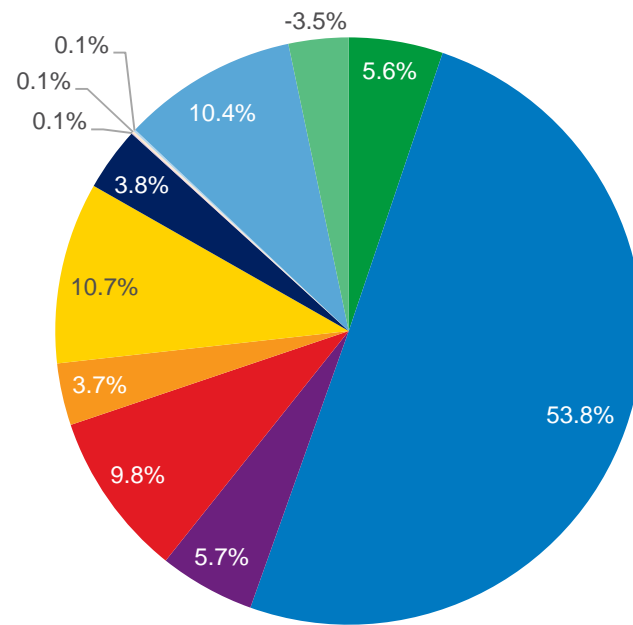


Current Fixed Income Portfolio Overview

Ratings Breakdown

Portfolio Breakdown			
	September 30, 2016		
	Portfolio (% NAV)	Benchmark (% NAV)	Active (% NAV)
AAA	5.6%	1.9%	3.6%
AA	53.8%	68.6%	-14.8%
A	5.7%	4.8%	0.9%
BBB	9.8%	8.0%	1.8%
BB	3.7%	6.5%	-2.8%
B	10.7%	7.5%	3.2%
CCC	3.8%	1.5%	2.3%
CC	0.1%	0.0%	0.0%
D	0.1%	0.2%	-0.1%
Cash Securities	0.1%	0.0%	0.1%
NR	10.4%	1.1%	9.2%
Cash	-3.5%	0.0%	-3.5%
Portfolio NAV	100.0%	100.0%	

Portfolio Breakdown by Rating



Source: BlackRock; Aladdin Green Package.

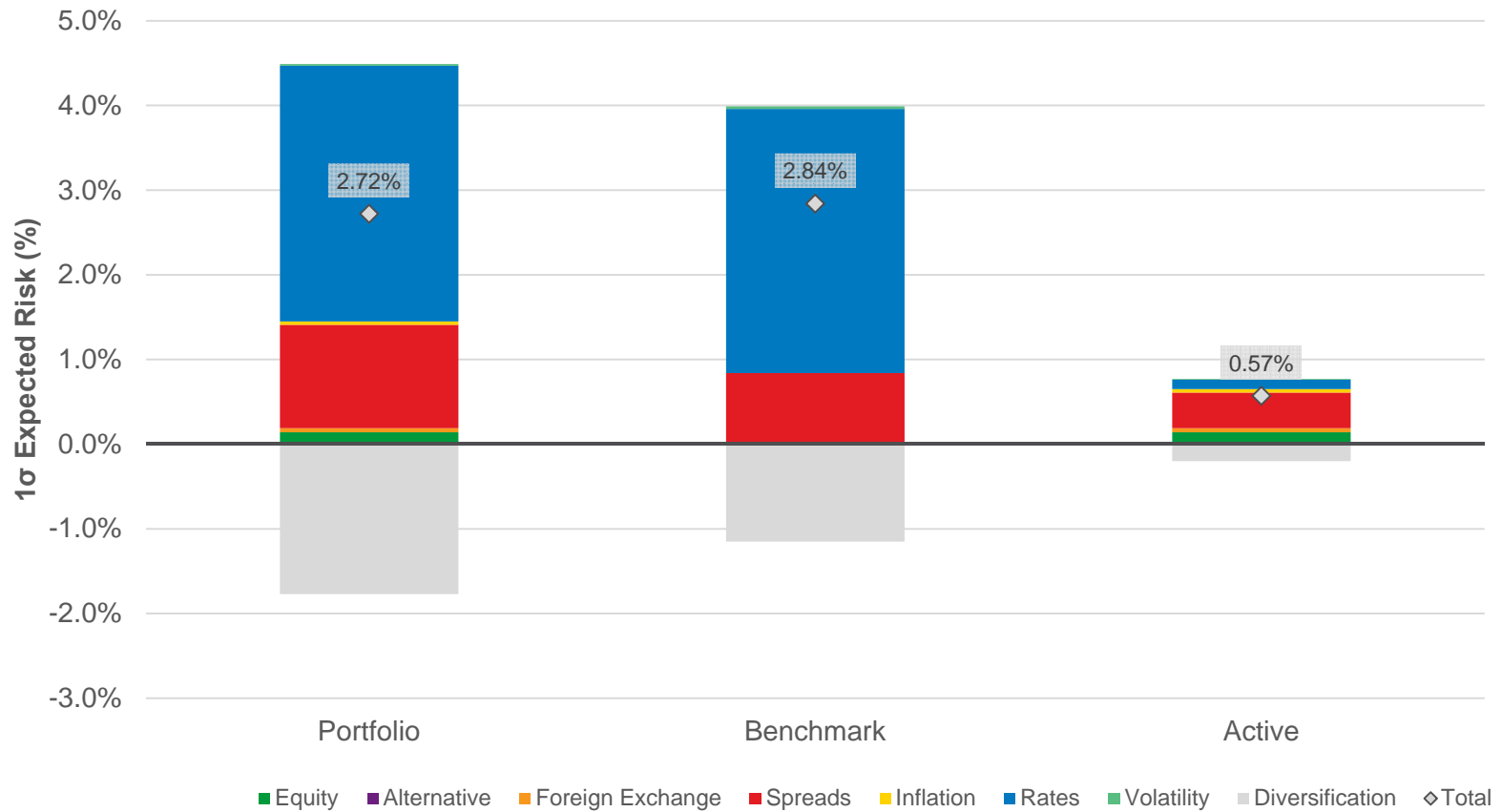
Current Fixed Income Portfolio Overview

Active Risk Decomposition By Factor

1B

2B

1σ Expected Risk (%) – Fixed Income Portfolio vs. Benchmark



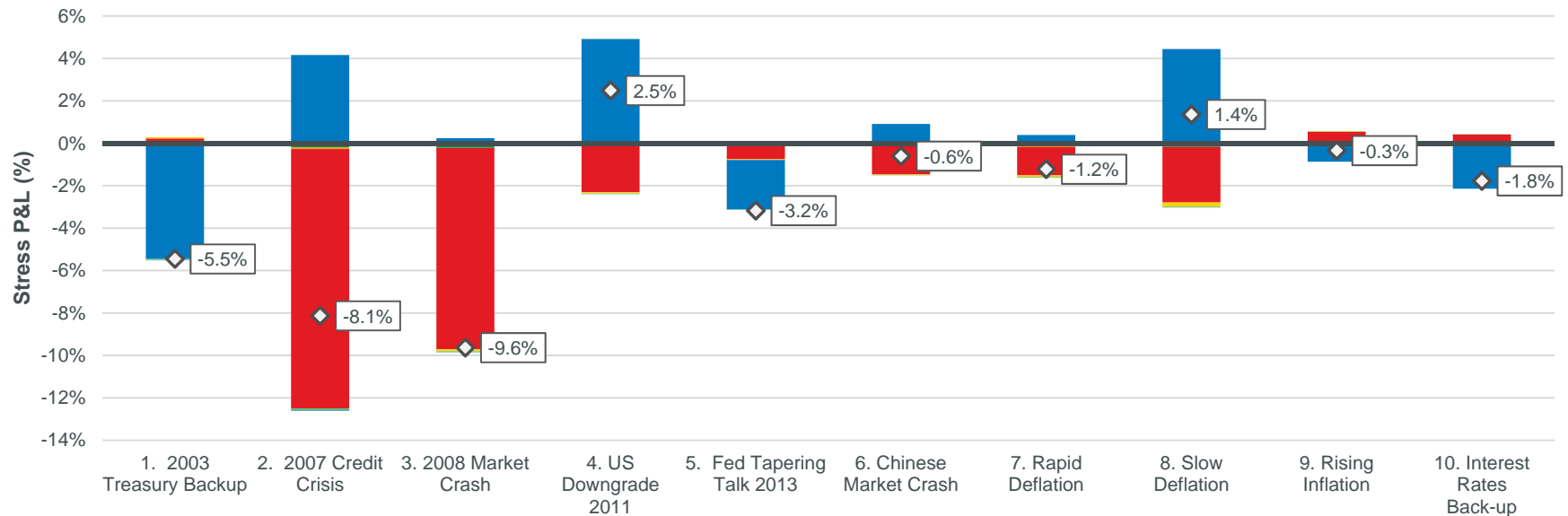
Source: BlackRock; Aladdin Portfolio Risk Tools. As of September 30, 2016.

Current Fixed Income Portfolio Overview

Stress Testing By Risk Factor

	1. 2003 Treasury Backup	2. 2007 Credit Crisis	3. 2008 Market Crash	4. US Downgrade 2011	5. Fed Tapering Talk 2013	6. Chinese Market Crash	7. Rapid Deflation	8. Slow Deflation	9. Rising Inflation	10. Interest Rates Back-up
Equity	0.0%	-0.2%	-0.2%	-0.1%	0.0%	-0.1%	-0.1%	-0.2%	0.0%	0.0%
Alternative	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Foreign Exchange	0.0%	-0.1%	0.0%	0.0%	0.0%	0.0%	-0.1%	0.0%	0.0%	0.0%
Spreads	0.2%	-12.2%	-9.5%	-2.2%	-0.7%	-1.4%	-1.3%	-2.6%	0.5%	0.4%
Inflation	0.1%	0.0%	-0.1%	-0.1%	0.0%	0.0%	-0.1%	-0.2%	0.0%	0.0%
Rates	-5.4%	4.2%	0.2%	4.9%	-2.3%	0.9%	0.4%	4.4%	-0.9%	-2.1%
Volatility	-0.1%	-0.1%	-0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	-5.5%	-8.1%	-9.6%	2.5%	-3.2%	-0.6%	-1.2%	1.4%	-0.3%	-1.8%
Total (\$mm)	-\$794.2	-\$1,184.7	-\$1,403.2	\$362.8	-\$461.9	-\$87.4	-\$177.8	\$198.2	-\$49.5	-\$257.9

Stress Testing (%)



Source: BlackRock; Aladdin Portfolio Risk Tools. As of September 30, 2016.

Current Fixed Income Portfolio Overview

Stress Tests Definitions

1. 2003 Treasury Backup

Treasuries sell-off resulting in a loss on interest rate returns. Equities and alternatives benefit as investors seek returns in other investments.

2. 2007 Credit Crisis

The Credit Crisis of 2007 resulted from the bursting of the housing bubble, a consequence of an unprecedented expansion of credit that helped feed a boom in the housing market. The bursting of the bubble forced banks to write down bad loans caused by mortgage delinquencies. The crisis saw a massive decrease in Treasury yields and a widening of both MBS and credit spreads.

3. 2008 Market Crash

Credit & liquidity crisis and equity market crash set off by Lehman Brothers bankruptcy. Significant credit spreads widening caused by massive deleveraging.

4. 2011 US Downgrade

The period begins with an indication of a 50% chance of a US downgrade from S&P and ends with the Fed's Operation Twist announcement. The stock market incurred losses while bond markets saw gains due to flight to quality.

5. 2013 Fed Tapering Scare

The timing and magnitude of Bernanke's testimony in front of Congress surprised the market, causing market volatility and both equity and bonds to sell off. Emerging Markets suffered badly due to a flight of money to the US.

6. Chinese Market Crash

Chinese stock market crash beginning with the popping of the stock market bubble on June 12, 2015.

7. Rapid Deflation

Oil price drops which causes short-end of the inflation curve to drop. The short end of the nominal curve is held unchanged since nominal rates in the short end are already very low. Due to the new round of quantitative easing agency mortgage rate spreads widen.

8. Slow Deflation

Oil price is kept unchanged. The 10yr inflation rate drops 200 bps. The 10yr nominal rate drops to historical lows while short-term nominal rates are held constant. Agency mortgage rate spreads tighten.

9. Rapid Inflation

The 10yr inflation rate increases by 27.5bps, a move with a 1% probability. Treasury rates and equities both rise slightly.

10. Interest Rates Back-up

The US Treasury yields shift upward in the middle and at the long end of the curve: 5y through 30y points rise by approximately 50 bps. The upward shift of the yield curve is considered a signal of a strengthening economy, and thus there is a small but positive impact on spread assets and equities.



IV. 2017 Goals

2017 Goals

Below Investment Grade Strategy

1C

2B

4A

5A

Improve Efficacy of Below Investment Grade (“BIG” or “Non-Core”) Strategy

Goals

- **Articulate role and objective(s) of the BIG Strategy**
- **Define and improve expected risk/return profile**
 - Improve diversification
 - Versus OPERF equity risk
 - Within BIG strategy

Background

- In July 2008 and April 2009, driven primarily by dislocation in the senior secured leveraged bank loan market, the OIC approved an allocation to strategic Credit Opportunities. The allocation, comprised predominantly of senior secured floating rate bank loans and high yield securities, is managed by external sector specialists. The funding for these two mandates in July 2008 represented OPERF’s first allocation to “specialist” fixed income managers and marked the first step away from “generalist” managers.
- The KKR Fund has a custom benchmark comprised of 65% of the S&P/LSTA Leveraged Loan Index and 35% of the Merrill Lynch High Yield Master II Index. The benchmark for the Oak Hill Advisors Fund uses the same indices but with an 85/15 mix.
- The BIG strategy has an excess return target of 200 basis points over the Barclays Aggregate Index.
- The BIG target allocation was reduced in December 2015 from 20% of Fixed Income to 17%. To-date, the BIG allocation has been reduced by \$1.7 billion (39% of YE15 BIG balance with another \$331 million pending).

Opportunity

- Relative to global fixed income markets, which total approximately \$43.97 trillion across 18 major fixed income market sectors with varying risk/return profiles, the OPERF fixed income allocation has exposures to 6 major fixed income sectors comprising approximately 41% of global fixed income market capitalization.
- The two current non-core (i.e., BIG) mandates derive the majority of returns from long-only corporate credit risk. Opportunities exist to further diversify OPERF’s non-core allocation with the objective of accessing other fixed income risk premia (e.g., liquidity, volatility, basis mismatch, etc.).

2017 Goals

Below Investment Grade Strategy

1C 2B 4A 5A

Capital Markets Program Correlation Matrix

Legend	-1.00	-0.50	0.00	0.50	1.00
--------	-------	-------	------	------	------

	Volatility	Capital Markets	Domestic	Global	International	BIG	Core	Government
Capital Markets	9.78%	1.00						
Domestic	14.81%	0.94	1.00					
Global	18.03%	0.97	0.90	1.00				
International	17.00%	0.94	0.78	0.94	1.00			
BIG	3.75%	0.61	0.53	0.60	0.59	1.00		
Core	3.22%	0.05	-0.03	-0.11	-0.05	0.02	1.00	
Government	3.82%	-0.18	-0.24	-0.34	-0.27	-0.23	0.95	1.00

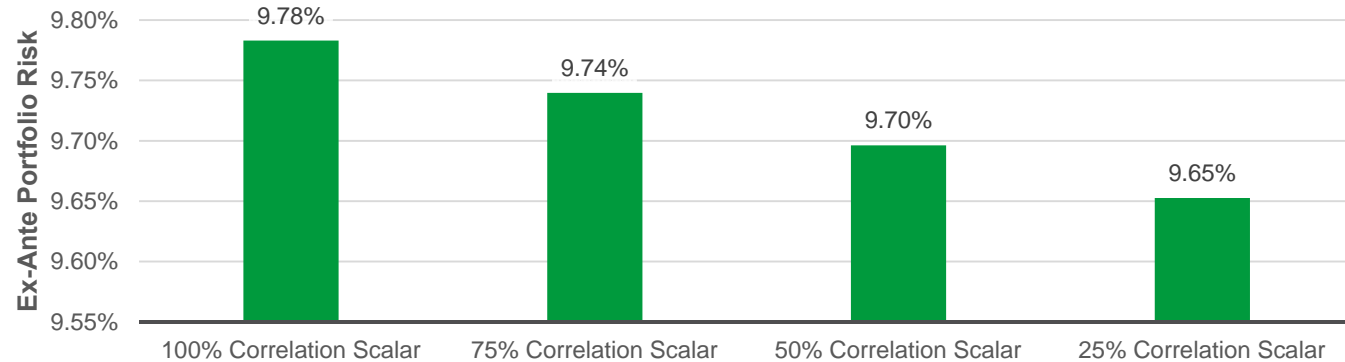
By shocking the correlation between the BIG and Public Equity allocations, we can estimate the net impact on overall Capital Markets Program risk by isolating the impact of correlations.

Source: BlackRock; Aladdin Portfolio Risk Tools. As of September 30, 2016.

2017 Goals

Below Investment Grade Strategy

Impact of Correlations on Ex-Ante Capital Markets Program Risk



	100% Correlation Scalar	75% Correlation Scalar	50% Correlation Scalar	25% Correlation Scalar
Expected Capital Markets Return¹	6.82%	6.82%	6.82%	6.82%
Correlation Scalar Size	0%	75%	50%	25%
<i>Correlation: BIG vs. Domestic Equity</i>	<i>0.53</i>	<i>0.39</i>	<i>0.26</i>	<i>0.13</i>
<i>Correlation: BIG vs. Global Equity</i>	<i>0.60</i>	<i>0.45</i>	<i>0.30</i>	<i>0.15</i>
<i>Correlation: BIG vs. International Equity</i>	<i>0.59</i>	<i>0.44</i>	<i>0.30</i>	<i>0.15</i>
Ex-Ante Portfolio Risk	9.78%	9.74%	9.70%	9.65%
Net Change to Ex-Ante Program Risk	-	-0.04%	-0.09%	-0.13%

¹ Expected Portfolio Return calculated using Callan Capital Market Assumptions and Aladdin Risk Assumptions. Please see following slide for additional detail.

Source: BlackRock; Aladdin Portfolio Risk Tools. As of September 30, 2016.

2017 Goals

Internal Management of Government Sleeve

1B

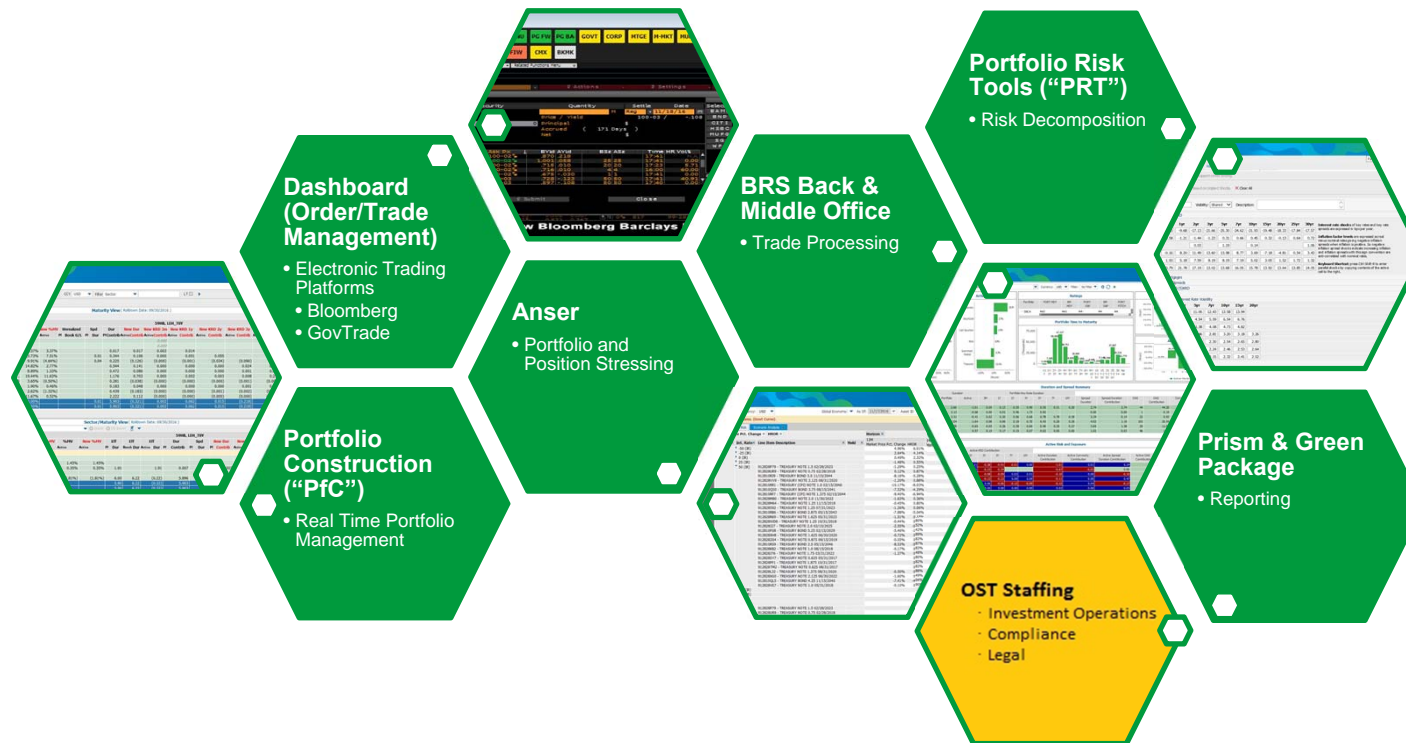
1E

6A

Migrate Government Sleeve to Internal Management

- 37% targeted allocation within Fixed Income – approximately \$5.4 billion using 10/31/2016 NAV
- Benchmarked to Bloomberg Barclays U.S. Aggregate Treasury Index
- Highly benchmark-oriented, limited active management

Robust Internal Investment Management Ecosystem





V. Policy Recommendations

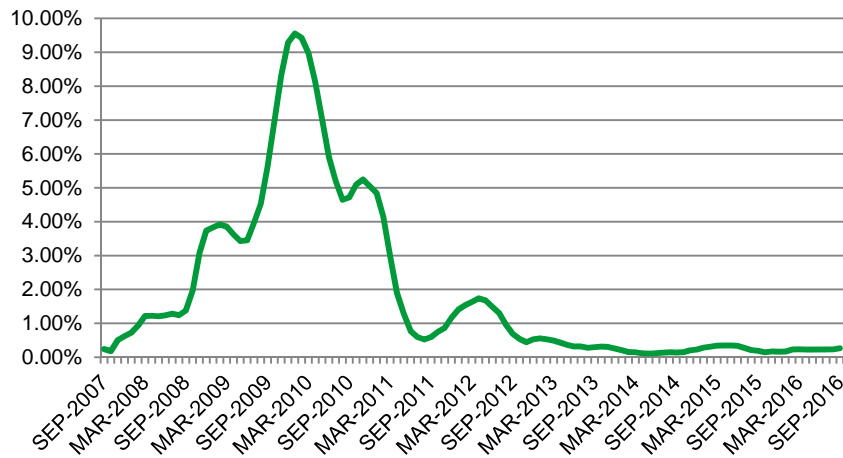
Policy Recommendations

INV 1203: Statement of Investment Objectives and Policy Framework for the Oregon Public Employees Retirement Fund

Staff recommends the following changes (**redlined in Appendix B**) to INV 1203 to recognize policy revisions to the OPERF Fixed Income portfolio:

- To recognize 37% target allocation to Government sleeve and reduction of BIG allocation to 17%:
 - Decrease net excess return objective by 10 basis points to 25 basis points;
 - Decrease Fixed Income annualized tracking error target range from a range of 1.0% to 2.0% to a range of 0.5% to 1.0%; and
 - Acknowledge decline in percent of actively-managed fixed income from 95% to 70%.

1σ TTM Fixed Income Ex-Post Tracking Error



Aladdin Green Package - As of 10/31/2016

Ex-Ante Tracking Error (1-Year Horizon, %) Fixed Income

Portfolio	Analytical VaR					
	1 SD Fund	1 SD Bench	1 SD TE	95% Fund	95% Bench	95% TE
Fixed Income	2.67	2.76	0.43	4.39	4.53	0.70
Core Fixed Income	3.20	3.13	0.36	5.24	5.14	0.60
BIG	3.71	3.36	0.99	6.08	5.51	1.62
Government	3.73	3.76	0.05	6.11	6.17	0.08

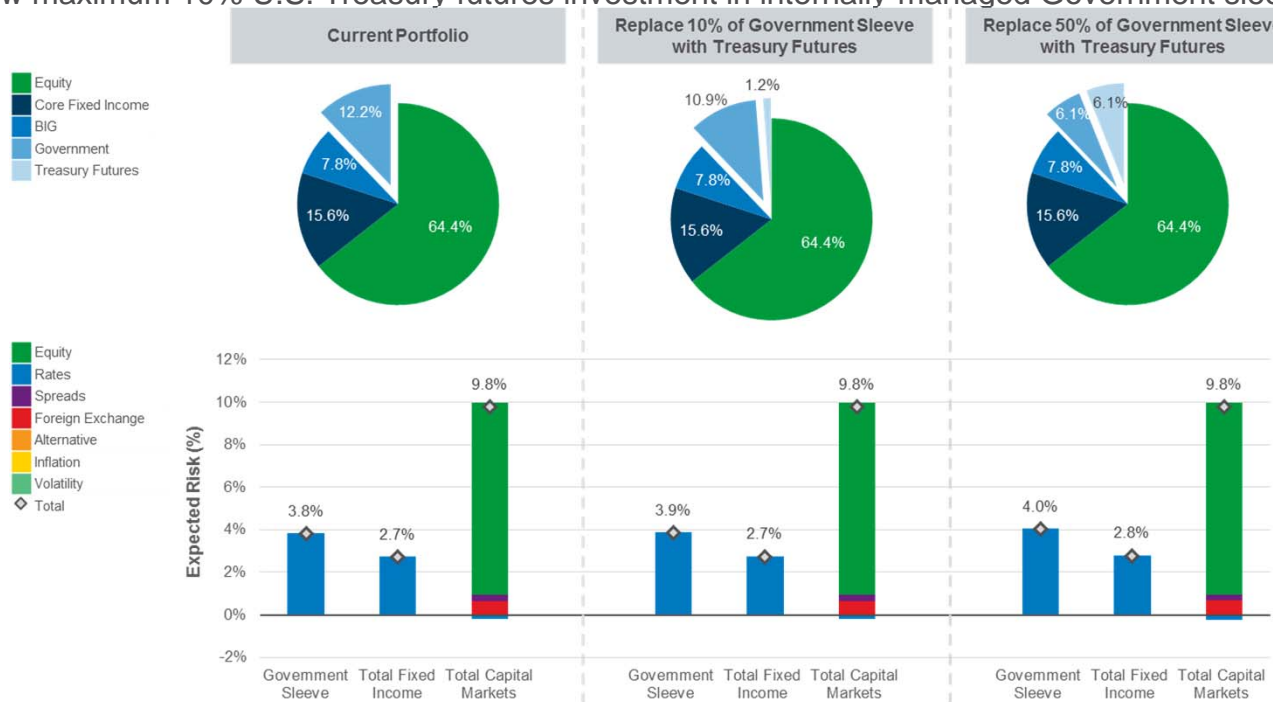
Source: State Street; BlackRock; Aladdin Green Package.

Policy Recommendations

INV 401: Strategic Role of Fixed Income for OPERF

Staff recommends the following policy changes (**redlined in Appendix C**) to INV 401 to accommodate the proposed Fixed Income portfolio revisions and transition of Government sleeve to internal management.

- To recognize 37% target allocation to Government sleeve and reduction of BIG allocation to 17%:
 - Decrease net excess return objective by 10 basis points to 25 basis points; and
 - Allow maximum 10% U.S. Treasury futures investment in internally-managed Government sleeve.



Source: BlackRock; Aladdin Portfolio Risk Tools. As of September 30, 2016. Differences in expected risk resulting from the introduction of Treasury futures are primarily related to the duration mismatch between the Government sleeve and the 10-Year Treasury Note Future.



VI. Appendix

Appendix A

Reviewing Changes within the Fixed Income Portfolio

2A

2B

The changes in ex-ante Capital Markets Program risk can be attributed to two main factors:

1. Market -- Changes in ex-ante portfolio volatility due to market movements; and
2. Allocation -- Changes in ex-ante portfolio volatility due to portfolio positioning of risk exposures.

Quarterly Ex-Ante Portfolio Volatility for the Capital Markets Program

	12/31/2015	3/31/2016	6/30/2016	9/30/2016
Ex-Ante Portfolio Risk	8.5%	10.0%	10.0%	9.8%
Ex-Ante Portfolio Risk (12/31/2015 Constant Exposure)	8.5%	10.4%	10.4%	9.9%

Quarterly Attribution of Changes to Ex-Ante Portfolio Volatility for the Capital Markets Program

	12/31/2015	3/31/2016	6/30/2016	9/30/2016
Beginning of Quarter Portfolio Risk	8.5%	10.0%	10.0%	9.8%
<i>Market Impact</i>	<i>1.9%</i>	<i>-0.1%</i>	<i>-0.3%</i>	<i>n/a</i>
<i>Allocation Impact</i>	<i>-0.5%</i>	<i>0.2%</i>	<i>0.1%</i>	<i>n/a</i>
End of Quarter Portfolio Risk	10.0%	10.0%	9.8%	n/a

Source: BlackRock Solutions; Aladdin Portfolio Risk Tools.

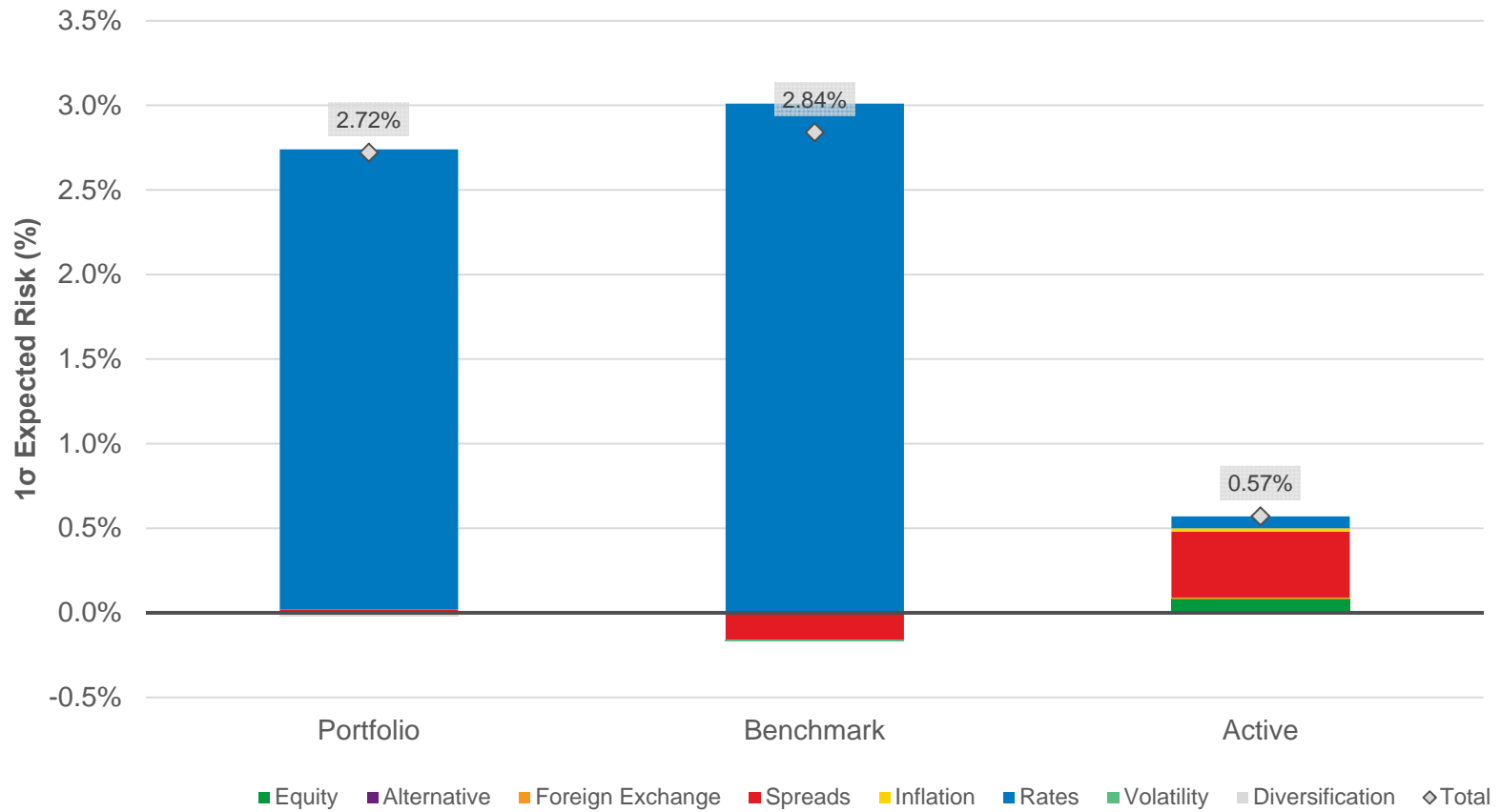
Appendix A

Current Portfolio Overview

1B 2B

Active Risk Decomposition – Risk Contribution

1σ Expected Risk (%) – Fixed Income Portfolio vs. Benchmark By Risk factor Group



Source: BlackRock; Aladdin Portfolio Risk Tools. As of September 30, 2016.

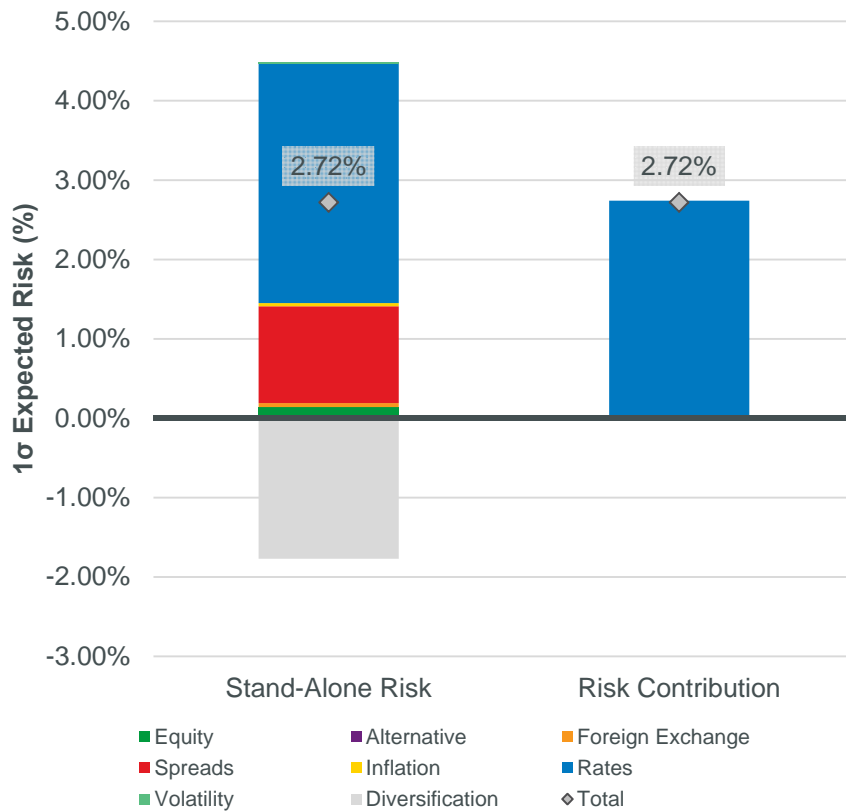
Appendix A

Current Fixed Income Portfolio Overview

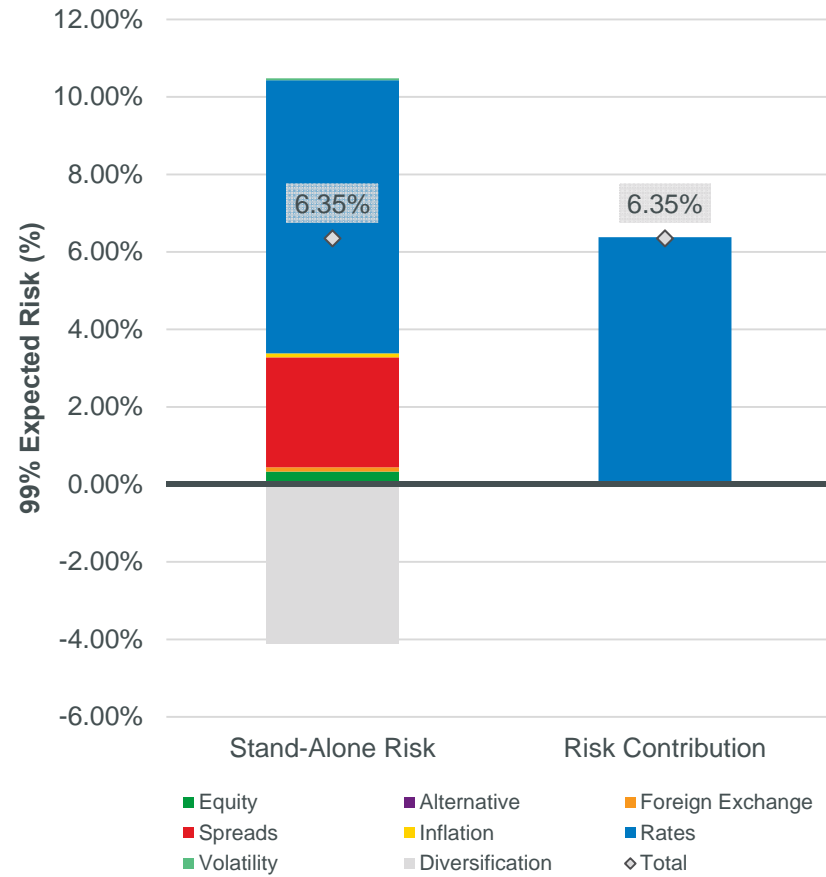
1B 2B

Risk Decomposition By Risk Factor Group

1σ Expected Risk (%)



99% Expected Risk (%)



Source: BlackRock; Aladdin Portfolio Risk Tools. As of September 30, 2016.

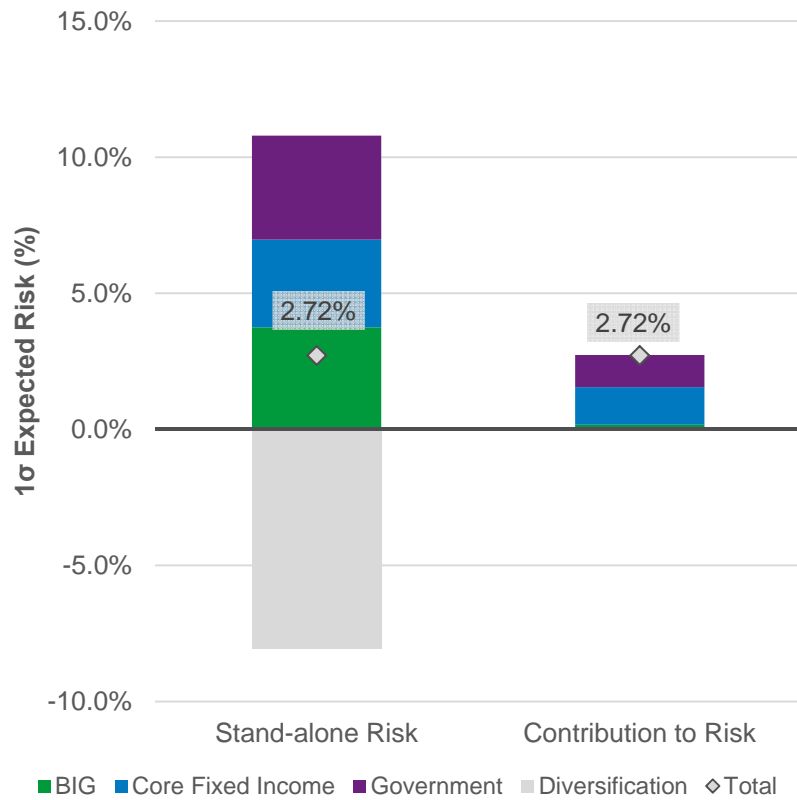
Appendix A

Current Fixed Income Portfolio Overview

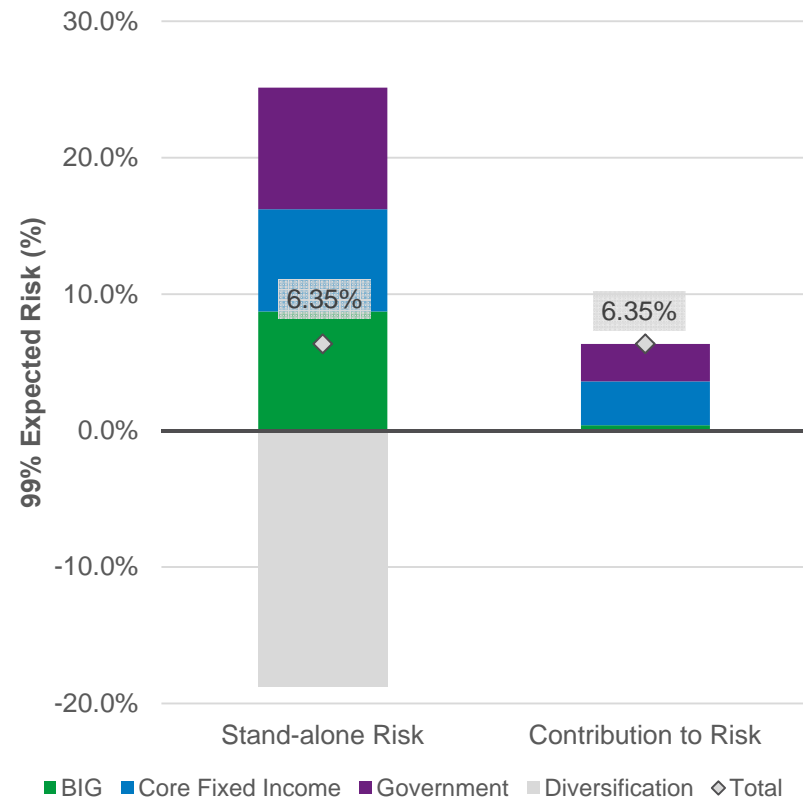
1B 2B

Risk Decomposition By Portfolio Group

1σ Expected Risk (%)



99% Expected Risk (%)



Source: BlackRock; Aladdin Portfolio Risk Tools. As of September 30, 2016. Transition Fixed Income excluded.

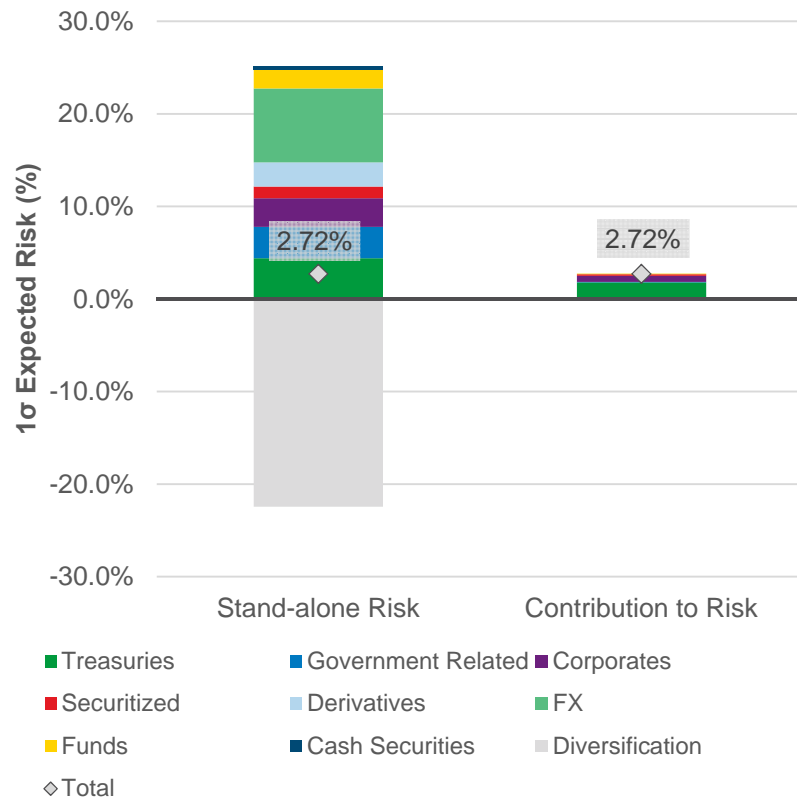
Appendix A

Current Fixed Income Portfolio Overview

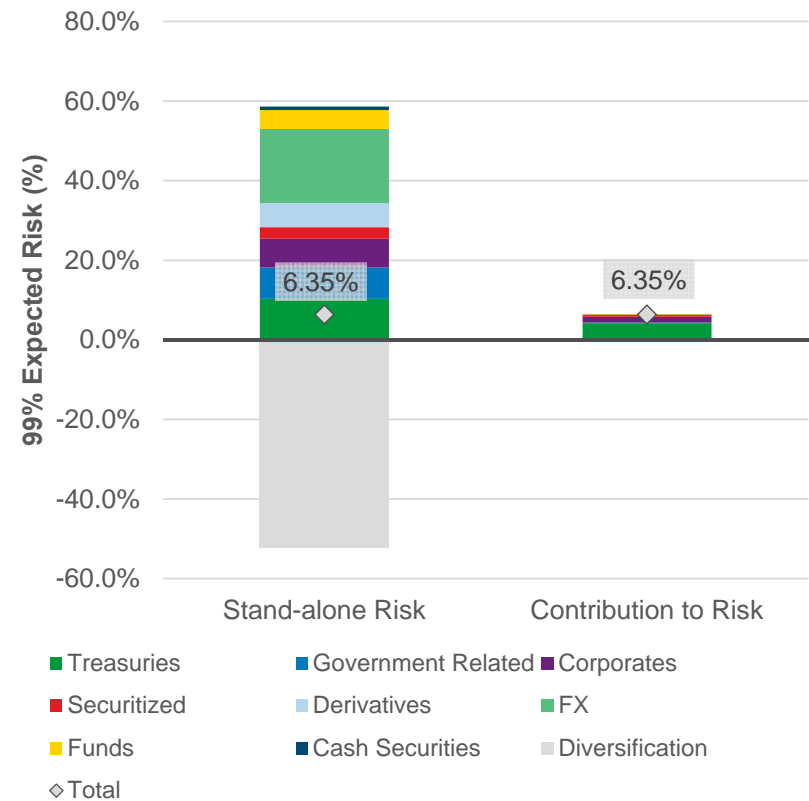
2B

Risk Decomposition By Asset Class

1σ Expected Risk (%)



99% Expected Risk (%)



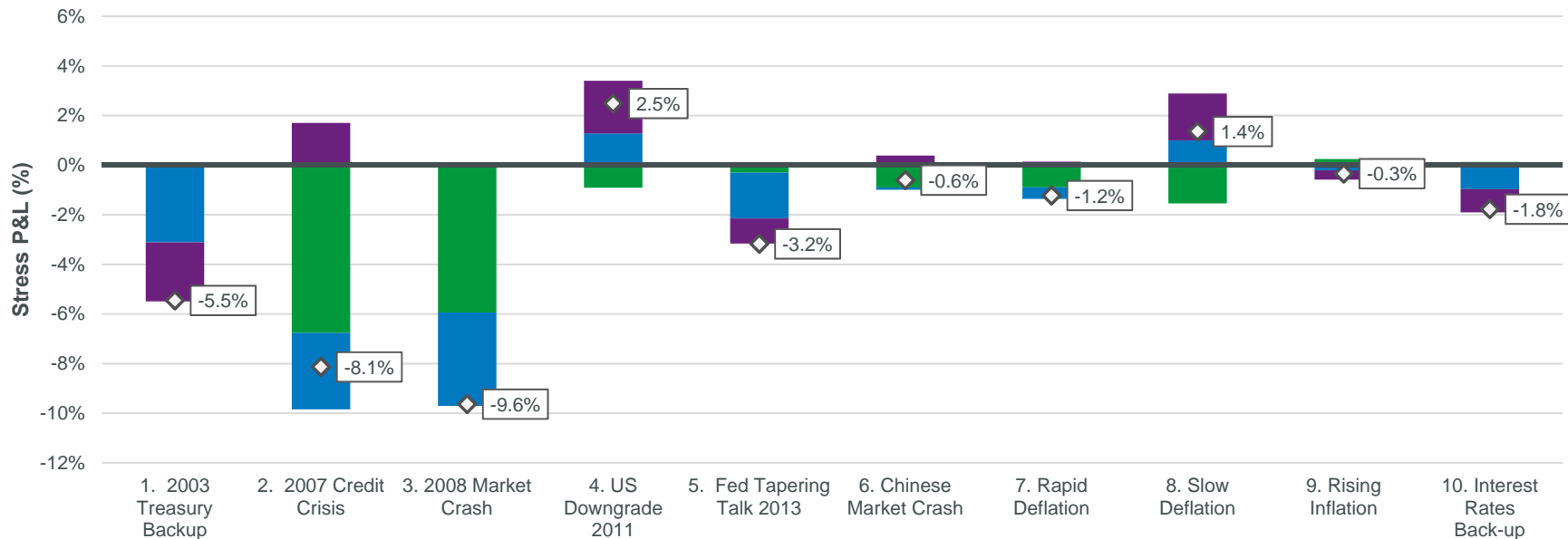
Source: BlackRock; Aladdin Portfolio Risk Tools. As of September 30, 2016. Equity and other asset classes excluded.

Appendix A

Current Fixed Income Portfolio Overview

Stress Testing (%) By Strategy

	1. 2003 Treasury Backup	2. 2007 Credit Crisis	3. 2008 Market Crash	4. US Downgrade 2011	5. Fed Tapering Talk 2013	6. Chinese Market Crash	7. Rapid Deflation	8. Slow Deflation	9. Rising Inflation	10. Interest Rates Back-up
Fixed Income	-5.5%	-8.1%	-9.6%	2.5%	-3.2%	-0.6%	-1.2%	1.4%	-0.3%	-1.8%
BIG	0.0%	-6.8%	-5.9%	-0.9%	-0.3%	-0.9%	-0.9%	-1.5%	0.3%	0.1%
Core Fixed Income	-3.1%	-3.1%	-3.8%	1.3%	-1.9%	-0.1%	-0.5%	1.0%	-0.2%	-1.0%
Government	-2.4%	1.7%	0.1%	2.1%	-1.0%	0.4%	0.1%	1.9%	-0.4%	-0.9%
Total	-5.5%	-8.1%	-9.6%	2.5%	-3.2%	-0.6%	-1.2%	1.4%	-0.3%	-1.8%
Total (\$mm)	-\$794.2	-\$1,184.7	-\$1,403.2	\$362.8	-\$461.9	-\$87.4	-\$177.8	\$198.2	-\$49.5	-\$257.9



Source: BlackRock; Aladdin Portfolio Risk Tools. As of September 30, 2016.

Appendix A

2017 Goals - Below Investment Grade Strategy

Universe of Fixed Income Market Sectors

Fixed Income Market Sector	2016 (USD Billions)	% of Index
US Sovereign & Government	7,227	16.44%
Japan Sovereign & Government	7,596	17.27%
Australia & Canadian Sovereign & Government	1,417	3.22%
Euro Sovereign & Government	6,847	15.57%
UK Sovereign & Government	1,290	2.93%
Other Euro Sovereign & Government	963	2.19%
Asia ex. Japan Sovereign & Government	1,422	3.23%
LatAm Sovereign & Government	961	2.19%
<i>Total: Sovereign & Government</i>	27,723	63.05%
US Investment Grade	4,347	9.89%
US High Yield	1,127	2.56%
EUR Investment Grade	1,358	3.09%
EUR High Yield	366	0.83%
Non-US Developed Market Corporates	2,001	4.55%
Emerging Market Corporates	556	1.27%
<i>Total: Corporate</i>	9,755	22.19%
Mortgage Backed Securities	5,077	11.55%
Asset Backed Securities	89	0.20%
Commercial Mortgage Backed Securities	163	0.37%
Covered Bonds	1,165	2.65%
<i>Total: Securitized</i>	6,493	14.77%
Total	43,971	

OPERF Fixed Income
Portfolio Sector
Exposures

Source: Bloomberg Index Services Multiverse Index.

Appendix A

2017 Goals - Below Investment Grade Strategy

Non-Core Strategy Correlation Analysis: Assumptions

Portfolio	Asset Class	Index	Callan		Aladdin	
			10-Year Geometric Return	Standard Deviation	10-Year Arithmetic Return	Standard Deviation
Domestic	Broad U.S. Equity	Russell 3000	7.35%	18.70%	9.24%	14.81%
International	Global ex-U.S. Equity	MSCI ACWI ex-U.S.	7.55%	21.30%	10.02%	17.00%
Global	Global Equity	MSCI ACWI IMI (42% US large, 11% Small/Mid, 30% Non-US Developed, 10% EM, 7% Intl Small Cap)	7.66%	19.27%	9.68%	18.03%
Core	U.S. Fixed	Barclays Aggregate	3.00%	3.75%	3.07%	3.22%
Government	Intermediate Government	Barclays Intermediate Government	2.30%	3.20%	2.35%	3.82%
BIG	75% S&P-LTSA / 25% Barclays High Yield	75% S&P-LTSA / 25% Barclays High Yield	4.33%	8.38%	4.70%	3.75%
Transition	Short Duration	Barclays 1-3 Year Government/Credit	2.60%	2.25%	2.63%	0.01%

Source: Callan; BlackRock; Aladdin Portfolio Risk Tools. As of September 30, 2016.

Appendix B

INV 1203: Statement of Investment Objectives and Policy Framework for the Oregon Public Employees Retirement Fund

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 "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 five audiences in mind: 1) incumbent, new and prospective Council members; 2) Treasury staff; 3) ~~OPERF~~ active and retired Oregon Public Employees Retirement System (OPERS) members; 4) the Oregon State Legislature and Governor; and 5) 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 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. 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, at a level of *risk* that is acceptable to active and retired OPERF members. The Council evaluates risk in terms of the probability of not achieving the ADR over a consecutive, twenty-year time horizon.
3. Historically, members were allowed to direct up to 75% of their 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 Index*.
4. 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

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 and active management return expectations are also summarized in Exhibit 1.
2. Of its total 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* and *real estate* assets, the Council is managing and diversifying the Fund's overall risk.
 4. Specific asset class exposures are maintained within the ranges outlined in Exhibit 1.
 5. 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 OPERF Regular Account

Asset Class	Target Allocation (%)	Re-balancing Range (%)	Expected Annual Policy Return ^{1, 2} (%)	Expected Annual Active Management Return (net of fees) (%)	Expected Annual 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	0.235	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 the weighted averages of the individual asset class returns. The policy mix's geometric mean return expectation is approximately 7.9%.

6. The policy mix's 7.6% 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 returns can deviate significantly from expectations – both positively and negatively.
7. 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.
8. 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 returns and 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 only be pursued on an opportunistic basis; moreover, the *Opportunity Portfolio* allocation shall not result in an allocation range breach for any of the other five, primary

- asset class allocations.
9. 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.
 10. 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.
 11. 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. The Council must accept active management in those asset classes for which there are no passive management alternatives, in particular, real estate, private equity and other alternative and opportunistic investment strategies.
 - 4.5- 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- At the aggregate level of the Regular Account, active management strategies authorized by the Council are expected to **add 0.6% 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.**
-

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:
 - a. In an effort to enhance return, maintain 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 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 **235 basis points** in annualized, net excess returns relative to a blended benchmark comprised of 46% *Barclays U.S. Aggregate Index*, 37% *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 with the OPERF fixed income allocation is managed to a 1.0.5 to 21.0 percent annualized tracking error target.**
 2. Key elements of the strategy:
 - a. At least **9570%** 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)* over rolling, consecutive five-year periods. Because 80% of the Fund's real estate investments are illiquid and/or traded infrequently, conventional risk budget concepts are not applicable.
2. Key elements of the strategy:
 - 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, risk budget concepts are not applicable.
- 2. Key elements of the strategy:
 - 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, risk budget concepts are not applicable.
- 2. Key elements of the strategy:
 - 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* represent 40% of the Fund's alternatives allocation, with a range of 35% to 45%. Diversifying Assets 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 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 requirements of 10.2 above is a simple comparison of Regular Account investment performance relative to the ADR over rolling, consecutive 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 six, primary asset class allocations: U.S. equity; non-U.S. equity; fixed income; real estate; private equity; and alternatives. Level four examines the performance of individual managers within each of the asset class allocations. 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 approved by the PERB is currently 7.75%.

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. Its constituents are capitalization-weighted based on their current amount outstanding times the market price plus accrued interest. This index tracks the performance of publicly issued, U.S. dollar-denominated, 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), at least 18 months to final maturity at the time of issuance, at least one year remaining to final maturity as of an index rebalancing date, a fixed coupon schedule and a minimum outstanding of \$100 million. In addition, 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).

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 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.

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 includes ~~treasuries, i.e.,~~ **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 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 equals 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, 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: 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.

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 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.

MSCI World Ex-U.S. Index: Same as the MSCI ACWI-IMI index described directly above, except that 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, smaller capitalized companies are more volatile or risky than 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 ~~a quarterly~~, 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 define 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, and is 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 an 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 administrating the management of the plan's liability and participant benefits.

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

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.

Real Estate Investment Trusts (REIT): A real estate portfolio managed by an investment company for the benefit of the trust unit holders. Most REIT units 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 7.75 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 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 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 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 allowed active PERS members to allocate a portion of their yearly employee contributions to a domestic equity portfolio. No such contributions were allowed after December 31, 2003. Active members who participated in the Variable Program 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, 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 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.

Appendix C

INV 401: Strategic Role of Fixed Income for OPERF

POLICY

The strategic role of fixed income investments is to provide diversification to the Oregon Public Employees Retirement Fund (OPERF) portfolio in general and its allocation to equity securities in particular. Fixed income investments also provide liquidity to help meet OPERF's cash flow requirements. Fixed income investments are subject to specific, strategic asset allocation targets established by the Oregon Investment Council and described in Policy 4.01.18.

PROCEDURES

A. PURPOSE

The purpose of these Fixed Income Investment Policies & Strategies is to a) define the objectives of fixed income as an asset class within the general investment policies established by the Oregon Investment Council (OIC) as part of its governance of the OPERF portfolio and b) outline appropriate strategies for implementing the OIC's fixed income investment policies.

Assigned benchmarks may not be changed without OIC approval; however, the following guidelines may be modified as considered necessary by the Chief Investment Officer (CIO):

1. The investment mandate to which a manager is assigned;
2. A manager's investment objectives;
3. A manager's performance objective(s), expressed on a relative basis in comparison to a defined benchmark, as that manager's required excess return; and
4. Permissible fixed income investments in which a manager may invest, subject to permitted holdings as listed in Section D.

B. POLICY OBJECTIVES

1. Over a market cycle of three to five years and on a net-of-fee basis, achieve a fixed income portfolio return of at least 35-25 basis points above the custom policy benchmark which is currently comprised as follows: 40% Barclays Capital U.S. Aggregate Bond Index; 40% Barclays Capital U.S. 1-3 Year Government/Credit Bond Index; 15% S&P/LSTA Leveraged Loan Index; and 5% Bank of America Merrill Lynch High Yield Master II Index. The fixed income portfolio is also expected to achieve top quartile performance in a peer group comprised of other public and corporate pension funds with total assets greater than \$1 billion.
2. Limit fixed income portfolio risk, as measured by the standard deviation of returns, to a level not to exceed that of the custom benchmark.

C. STRATEGIES

1. Build and maintain a well-diversified fixed income portfolio that reflects the general characteristics of the custom benchmark and is managed to maximize total return subject to the risk limitations described directly above.
2. Maintain portfolio duration within parameters as defined by staff, with OIC approval, for each specific fixed income mandate.
3. Staff will have discretion, with CIO approval and quarterly OIC reporting, to rebalance between and among managers should specific mandates exceed the OIC's approved allocation percentage of total OPERF fixed income. The total fixed income portfolio's structural characteristics will be considered at the time of any rebalancing.
4. Invest opportunistically using innovative investment approaches within a controlled and defined portfolio allocation.
5. Over a market cycle of three to five years, active managers are expected to outperform stated benchmarks on an after-fee, risk-adjusted basis.
6. The OIC's selection of active managers will be based upon demonstrated expertise as reflected

by an ability to add value over a passive management alternative and within reasonable risk parameters.

D. PERMITTED HOLDINGS

The following fixed income securities, individually or in commingled vehicles, may be held outright and under resale agreement:

1. Obligations issued or guaranteed by the U.S. Federal Government, U.S. Federal agencies or U.S. government-sponsored corporations and agencies;
2. Obligations of U.S. and non-U.S. corporations such as convertible and non-convertible notes and debentures, preferred stocks, commercial paper, certificates of deposit and bankers acceptances issued by industrial, utility, finance, commercial banking or bank holding company organizations, bank loans, common stock received in connection with the restructuring of corporate debt;
3. Mortgage-backed, asset-backed and structured securities;
4. Obligations, including the securities of emerging market issuers, denominated in U.S. dollars or foreign currencies of international agencies, supranational entities and foreign governments (or their subdivisions or agencies), as well as foreign currency exchange-related securities, warrants and forward contracts;
5. Obligations issued or guaranteed by U.S. local, city and state governments and agencies;
6. Securities defined under Rule 144A and Commercial Paper defined under Section 4(2) of the Securities Act of 1933;
7. Yankee Bonds (dollar denominated sovereign and corporate debt);
8. Derivatives including futures, swaps and options contracts; and
9. Securities eligible for the Short-Term Investment Fund (OSTF).

E. DIVERSIFICATION

The portfolio should be adequately diversified to minimize various risks. The following specific limitations reflect, in part, the OIC's current investment philosophy regarding diversification.

1. Obligations issued or guaranteed by the U.S. government, U.S. agencies or government sponsored enterprises are eligible, without limit.
2. Obligations of other national governments are limited to 10% per issuer.
3. Private mortgage-backed and asset-backed securities are limited to 10% per issuer, unless the collateral is credit-independent of the issuer and the security's credit enhancement is generated internally, in which case the limit is 25% per issuer.
4. Obligations of other issuers are subject to a 3% per issuer limit excluding investments in commingled vehicles.
5. Not more than 25% of the portfolio may be invested in non-dollar denominated securities.
6. Not more than 30% of the portfolio will be below investment grade (below Baa3/BBB-).
7. No more than 5% of the externally--managed portfolio will be invested in original futures or swaps margin and option premiums, exclusive of any in-the-money portion of the premiums. Short (sold) options positions will generally be hedged with cash, cash equivalents, current portfolio security holdings or other options or futures positions.
- 7.8. No more than 10% of internally--managed funds ~~recognized~~ may be invested in U.S. Treasury futures.

F. ABSOLUTE RESTRICTIONS

Investments in the following are prohibited:

1. Short sales of securities;
2. Margin purchases or other use of lending or borrowing money or leverage to create positions greater than 100% of the market value of assets under management;
3. Commodities or common stocks, unless common stock shares are received due to a restructuring, then shares will be liquidated at the manager's discretion; and
4. Securities of the existing investment manager, its parents, custodians or subsidiaries.

TAB 5 – OSTF Review
Oregon Short Term Fund

Oregon Short Term Fund Annual Review

Purpose

Provide an annual update and review of the Oregon Short Term Fund (“OSTF”). The update will be informational in nature. There are no staff recommendations or actions that require a vote of the Oregon Investment Council (“OIC”).

Objective of the Fund

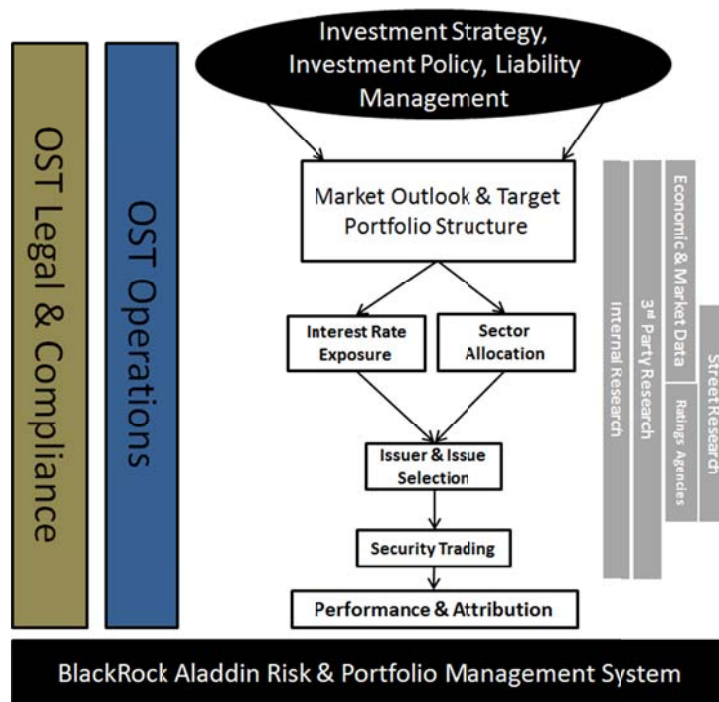
The investment objectives of the OSTF are, in priority order, **preservation of principal**, maintenance of a sufficient level of **liquidity** to meet all state, agency and local government operating requirements and attainment of a **yield** greater than money market and short-term alternatives through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

Investment Strategy

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

Investment Objective

Staff takes a risk-balanced active management approach that is informed by a detailed understanding of the OSTF’s liability stream combined with market and security research to produce excess returns in a safe, liquid fund with a continuous focus on minimizing volatility and maximizing risk-adjusted returns.



Investment Performance

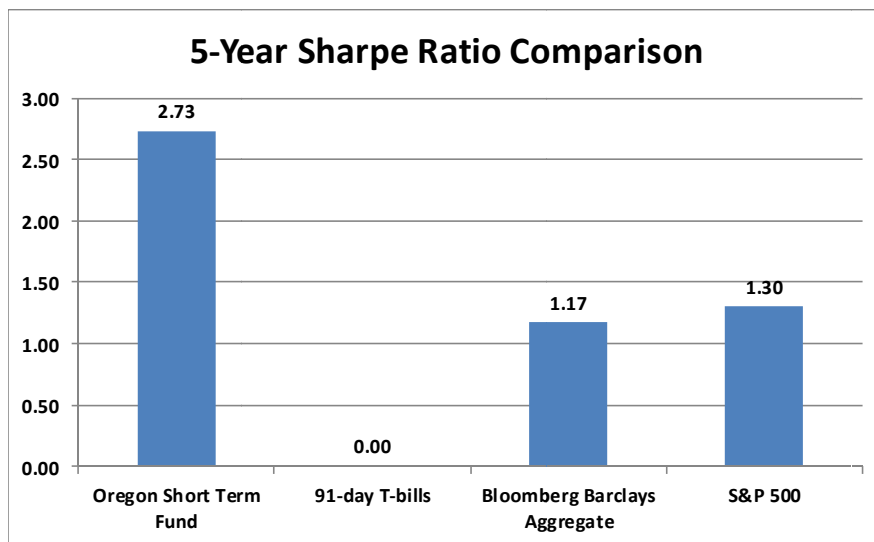
The Federal Reserve Open Market Committee’s December 2015 rate hike as well as money market fund reform that took full effect in October of 2016 provided an opportunity-rich environment for OSTF investment activities.

Oregon Short Term Fund Performance										
As of October 31, 2016										
	Oct-16	3 Mos	YTD	1 Yr	2 Yrs	3 Yrs	4 Yrs	5 Yrs	7 Yrs	10 Yrs
Oregon Short Term Fund	0.09%	0.25%	1.10%	1.09%	0.81%	0.73%	0.72%	0.87%	0.79%	1.52%
91-Day T-Bills	0.03%	0.09%	0.27%	0.31%	0.16%	0.12%	0.11%	0.11%	0.11%	0.89%

Risk-Adjusted Performance Comparison to Selected Indices									
	1-Year			3-Year			5-Year		
	Total Return	Std. Dev.	Sharpe Ratio	Total Return	Std. Dev.	Sharpe Ratio	Total Return	Std. Dev.	Sharpe Ratio
Oregon Short Term Fund	1.09%	0.21%	3.76	0.73%	0.19%	3.27	0.87%	0.28%	2.73
91-day T-bills	0.31%	0.05%	-	0.12%	0.05%	-	0.11%	0.04%	-
Bloomberg Barclays Aggregate	4.45%	2.68%	1.54	3.49%	2.57%	1.31	3.24%	2.67%	1.17
S&P 500	4.51%	10.00%	0.42	8.84%	10.71%	0.81	13.57%	10.31%	1.30

As of October 31, 2016.

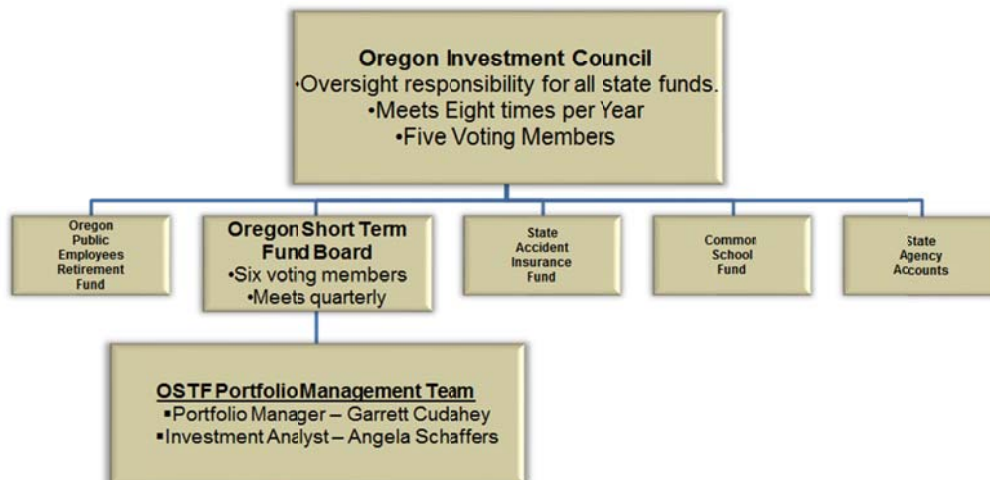
Source: State Street; S&P Dow Jones Indices; Bloomberg Index Services.



Investment Governance

The OSTF is governed by the OIC. The Oregon Short Term Fund Board (“OSTFB”) provides the OIC with portfolio guideline and policy recommendations, typically proposed by staff, after discussion, review and/or approval at an OSTFB meeting.

OSTF Portfolio Governance



Presentation Materials:

- OSTF Aladdin Risk Report
- OSTF Portfolio Update Presentation

Informational Items:

- OSTF June 30, 2016 Audited Financial Statement
- OSTF September 30, 2016 Compliance Report
- OSTF September 30, 2016 Holdings Report

BLACKROCK®

Oregon Short Term Fund

Portfolio Review

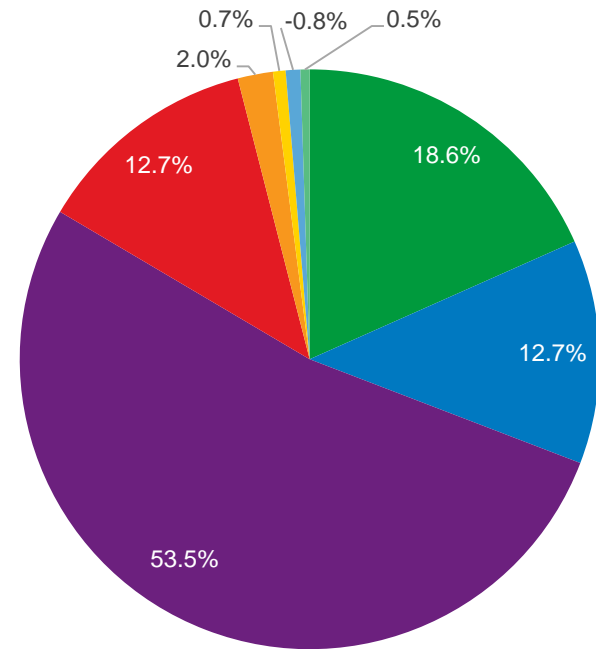
October 2016

FOR USE WITH OREGON STATE TREASURY ONLY

OSTF Asset Class Breakdown

Portfolio Breakdown		
September 30, 2016		
	Market Value (%)	Market Value (\$m)
Treasuries	18.6%	\$2,613,696
Government Related	12.7%	\$1,778,482
Corporates	53.5%	\$7,502,996
Securitized	12.7%	\$1,783,431
Municipals	2.0%	\$280,300
Funds	0.7%	\$100,079
Cash Securities	-0.8%	-\$115,807
Cash	0.5%	\$72,474
Portfolio NAV	100.0%	\$14,015,652

Portfolio Breakdown by Asset Class

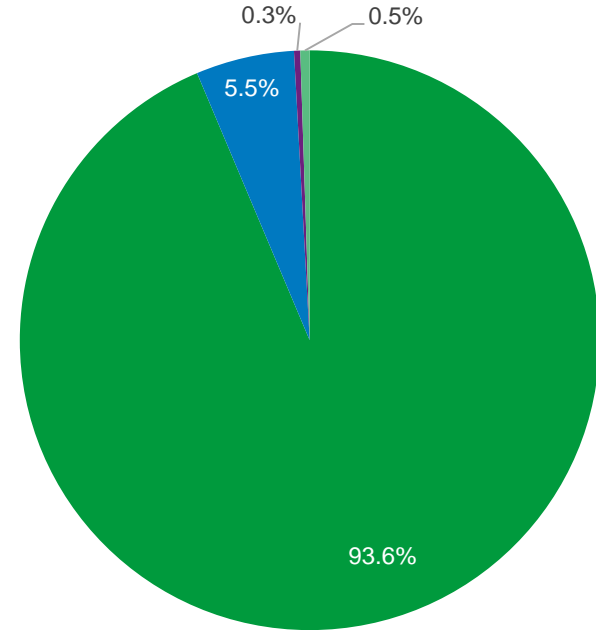


Source: BlackRock, Green Package; As of September 30, 2016.

OSTF Country Breakdown

Portfolio Breakdown		
	September 30, 2016	
	Market Value (%)	Market Value (\$m)
Dollar Bloc	93.7%	\$13,125,456
<i>United States</i>	86.0%	\$12,048,073
<i>Canada</i>	6.2%	\$870,394
<i>Australia</i>	1.5%	\$206,989
Euro Bloc	5.5%	\$769,276
<i>Belgium</i>	0.4%	\$50,638
<i>France</i>	0.7%	\$100,211
<i>Germany</i>	0.6%	\$82,844
<i>Norway</i>	0.3%	\$45,119
<i>Sweden</i>	0.4%	\$59,590
<i>United Kingdom</i>	3.1%	\$430,873
Asia Bloc	0.3%	\$48,445
<i>Japan</i>	0.1%	\$16,039
<i>South Korea</i>	0.2%	\$32,407
Cash	0.5%	\$72,474
Portfolio NAV	100.0%	\$14,015,652

Portfolio Breakdown by Country

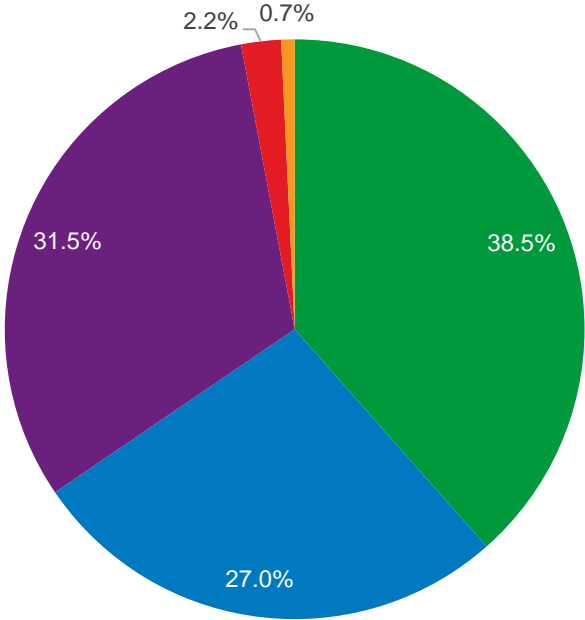


Source: BlackRock, Green Package; As of September 30, 2016.

OSTF Ratings Breakdown

Portfolio Breakdown		
September 30, 2016		
	Market Value (%)	Market Value (\$m)
AAA	38.5%	\$5,393,904
AA	27.0%	\$3,785,218
A	31.5%	\$4,420,809
BBB	2.2%	\$311,218
NR	0.7%	\$104,501
Portfolio NAV	100.0%	\$14,015,652

Portfolio Breakdown by Rating

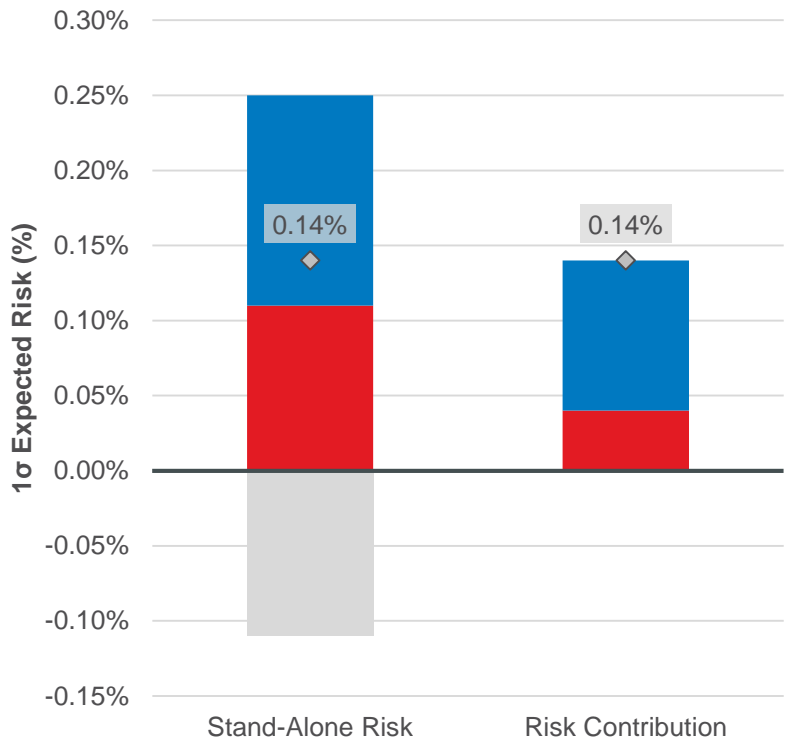


Source: BlackRock, PRISM; As of September 30, 2016.

OSTF Risk Decomposition

By Risk Factor Group

1σ Expected Risk (%)



1σ Expected Risk (\$mm)



- Equity
- Alternative
- Foreign Exchange
- Spreads
- Inflation
- Rates
- Volatility
- Diversification
- ◆ Total

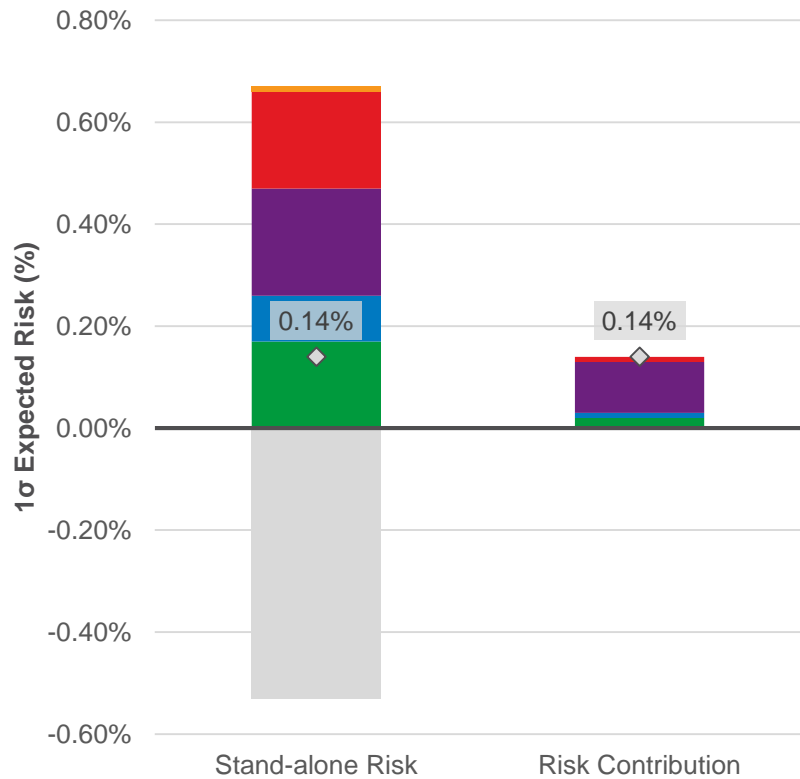
- Equity
- Alternative
- Foreign Exchange
- Spreads
- Inflation
- Rates
- Volatility
- Diversification
- ◆ Total

Source: BlackRock, Portfolio Risk Tools; As of September 30, 2016.

OSTF Risk Decomposition

By Asset Class

1σ Expected Risk (%)



- Treasuries
- Corporates
- Municipals
- Government Related
- Securitized
- Diversification
- ◇ Total

1σ Expected Risk (\$mm)



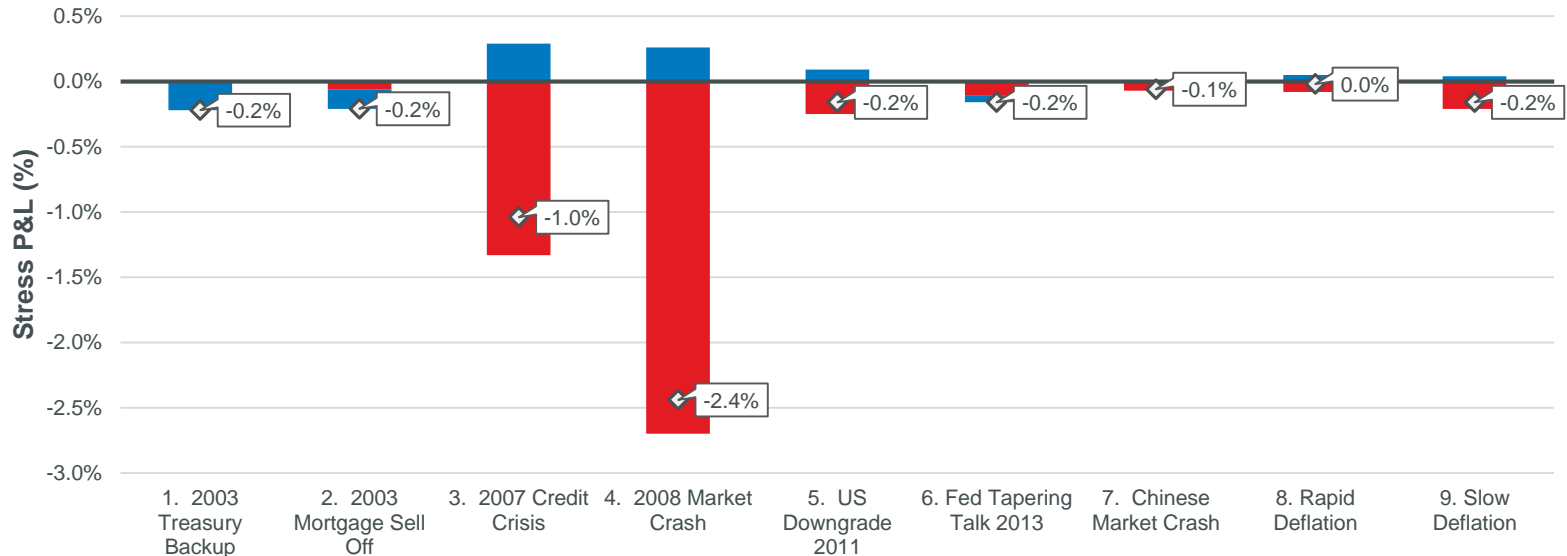
- Treasuries
- Corporates
- Municipals
- Government Related
- Securitized
- Diversification
- ◇ Total

Source: BlackRock, Portfolio Risk Tools; As of September 30, 2016.

OSTF Stress Testing

	1. 2003 Treasury Backup	2. 2003 Mortgage Sell Off	3. 2007 Credit Crisis	4. 2008 Market Crash	5. US Downgrade 2011	6. Fed Tapering Talk 2013	7. Chinese Market Crash	8. Rapid Deflation	9. Slow Deflation
Equity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Alternative	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Foreign Exchange	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Spreads	0.0%	-0.1%	-1.3%	-2.7%	-0.3%	-0.1%	-0.1%	-0.1%	-0.2%
Inflation	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Rates	-0.2%	-0.2%	0.3%	0.3%	0.1%	-0.1%	0.0%	0.1%	0.0%
Volatility	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	-0.2%	-0.2%	-1.0%	-2.4%	-0.2%	-0.2%	-0.1%	0.0%	-0.2%
Total (\$mm)	-\$31	-\$29	-\$146	-\$342	-\$22	-\$22	-\$8	-\$3	-\$22

Stress Testing (%)



Source: BlackRock, Portfolio Risk Tools; As of September 30, 2016.

Stress Testing Definitions

1. 2003 Treasury Backup

Treasuries sell-off resulting in a loss on interest rate returns. Equities and alternatives benefit as investors seek returns in other investments.

2. 2003 Mortgage Sell Off

An unexpected rise in Treasury yields engendered a massive sell-off of mortgage backed securities (MBS), resulting in increased MBS spreads and decreased credit spreads. Convexity selling as mortgage durations lengthen.

3. 2007 Credit Crisis

The Credit Crisis of 2007 resulted from the bursting of the housing bubble, a consequence of an unprecedented expansion of credit that helped feed a boom in the housing market. The bursting of the bubble forced banks to write down bad loans caused by mortgage delinquencies. The crisis saw a massive decrease in Treasury yields and a widening of both MBS and credit spreads.

4. 2008 Market Crash

Credit & liquidity crisis and equity market crash set off by Lehman Brothers bankruptcy. Significant credit spreads widening caused by massive deleveraging.

5. 2011 US Downgrade

The period begins with an indication of a 50% chance of a US downgrade from S&P and ends with the Fed's Operation Twist announcement. The stock market incurred losses while bond markets saw gains due to flight to quality.

6. 2013 Fed Tapering Scare

The timing and magnitude of Bernanke's testimony in front of Congress surprised the market, causing market volatility and both equity and bonds to sell off. Emerging Markets suffered badly due to a flight of money to the US.

7. Chinese Market Crash

Chinese stock market crash beginning with the popping of the stock market bubble on June 12, 2015.

8. Rapid Deflation

Oil price drops which causes short-end of the inflation curve to drop. The short end of the nominal curve is held unchanged since nominal rates in the short end are already very low. Due to the new round of quantitative easing agency mortgage rate spreads widen.

9. Slow Deflation

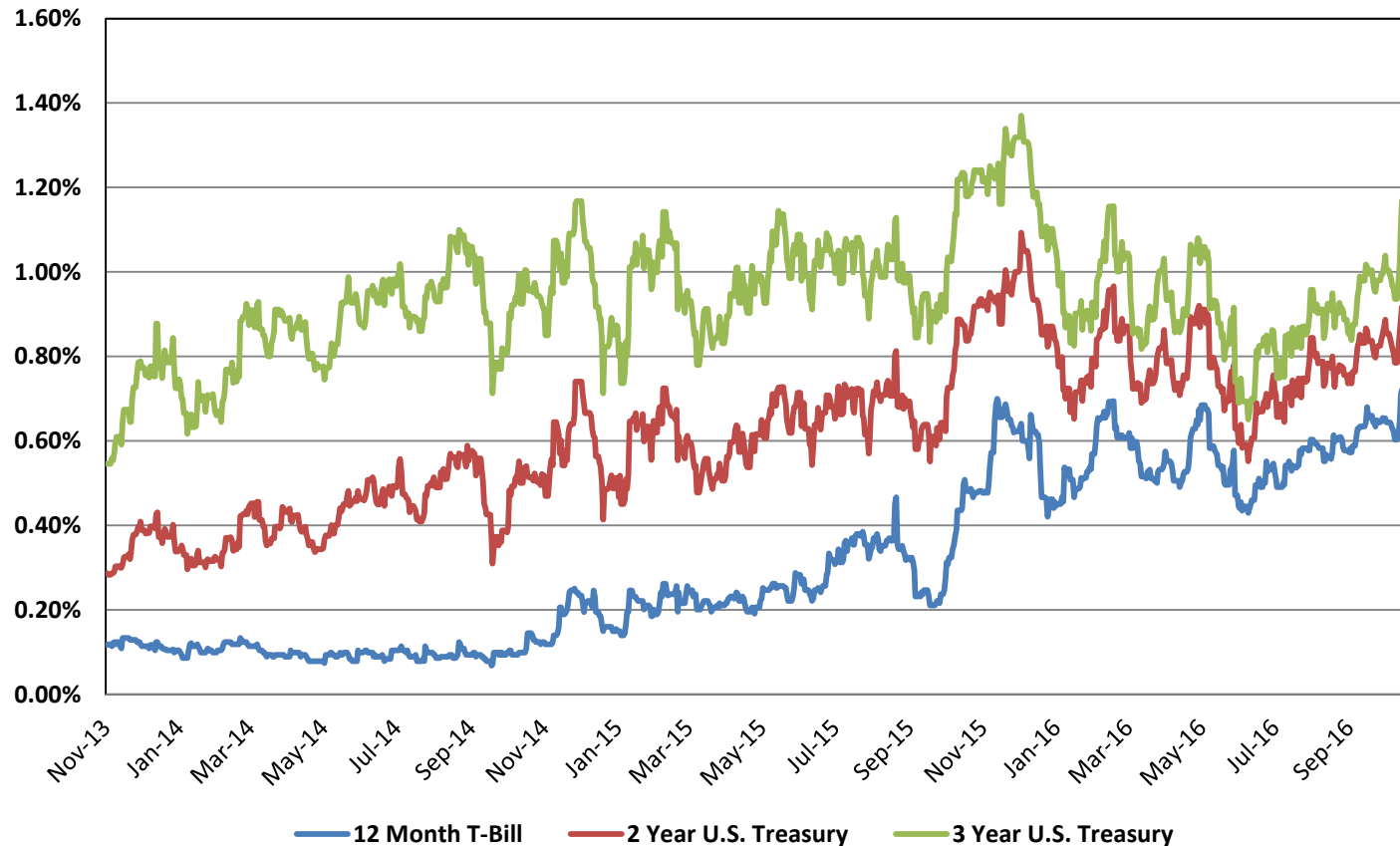
Oil price is kept unchanged. The 10yr inflation rate drops 200 bps. The 10yr nominal rate drops to historical lows while short-term nominal rates are held constant. Agency mortgage rate spreads tighten.

Oregon Investment Council
Wednesday, December 7, 2016 at 9:00am

OSTF Portfolio Update

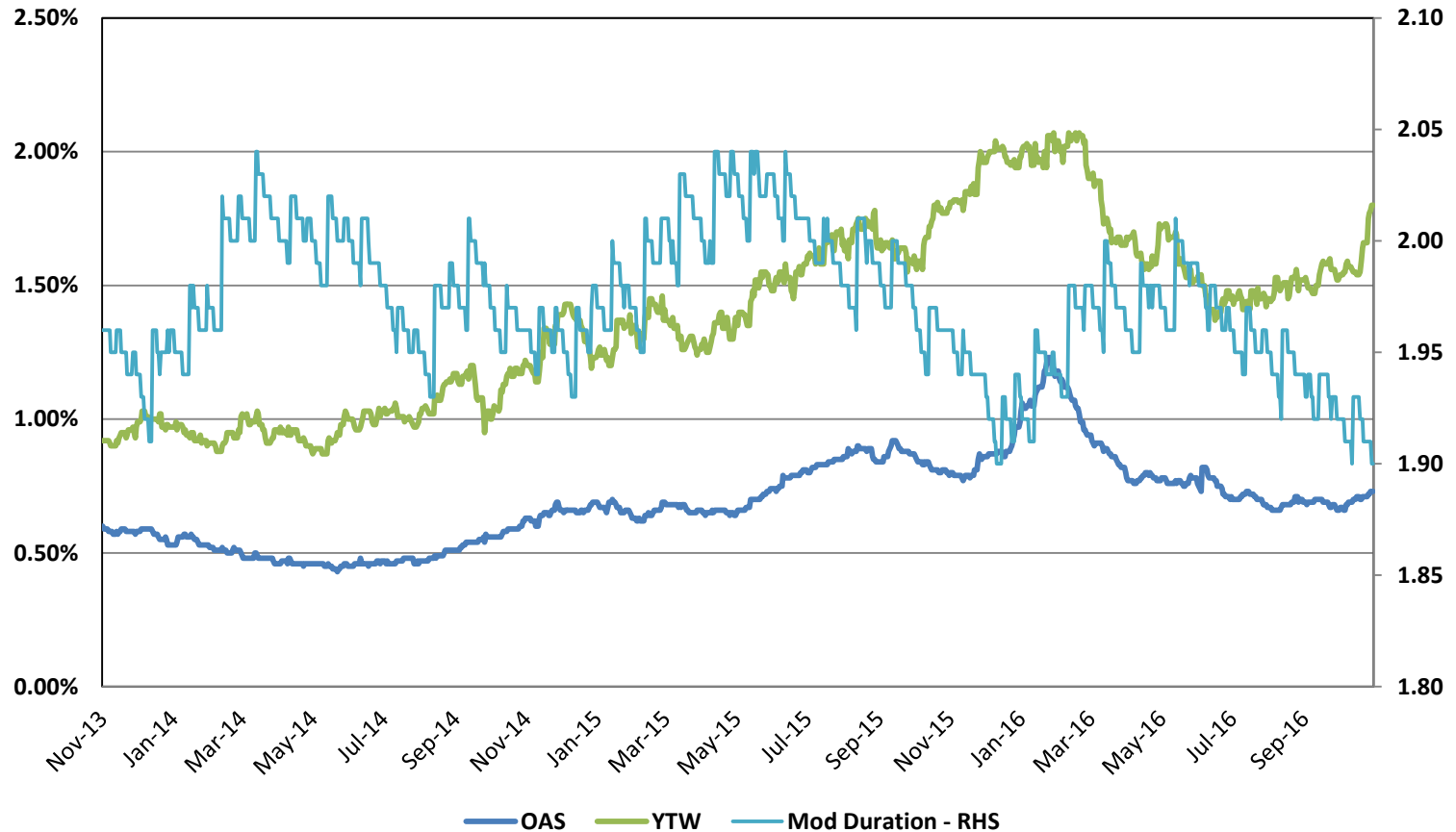
Garrett Cudahey, Investment Officer
Angela Schaffers, Investment Analyst

Front-End U.S. Treasury Yields



- *Front-end rates spiked higher after the U.S. Presidential election.*
- *The Fed recently lowered their expectations but remains on course toward more rate hikes.*

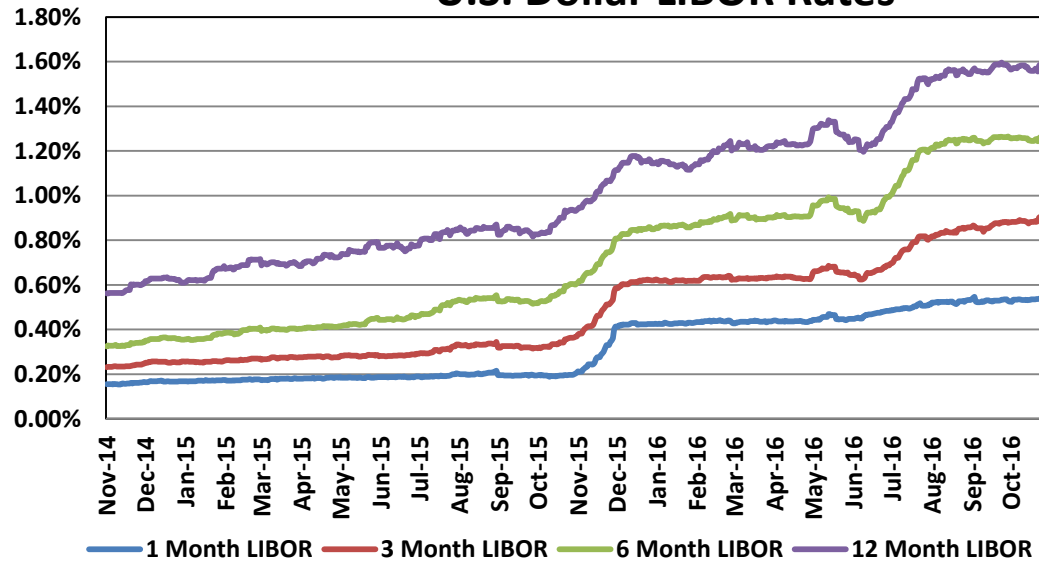
Barclays 1-3 Year Credit Spreads



➤ *Credit spreads, as measured by the Barclays 1-3 year Corporate Bond Index, continued to grind tighter throughout the summer and fall after a sharp selloff in the first quarter.*

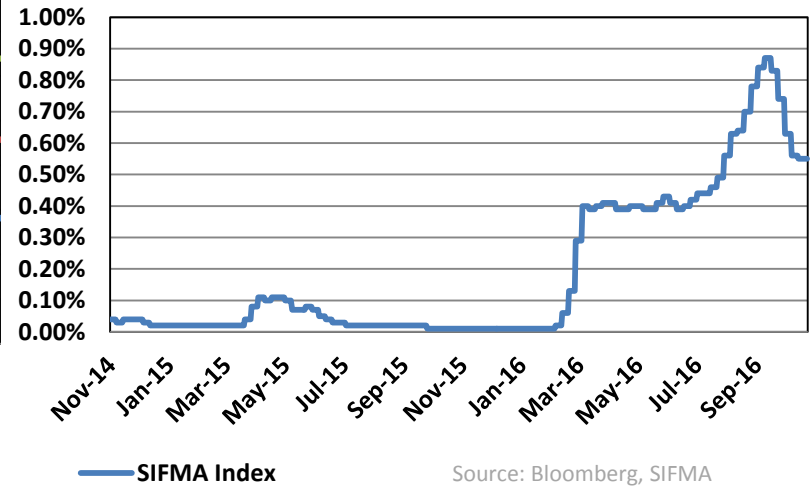
Impact of Money Market Reform

U.S. Dollar LIBOR Rates



Source: Bloomberg, ICE Benchmark Administration

SIFMA Municipal Swap Index



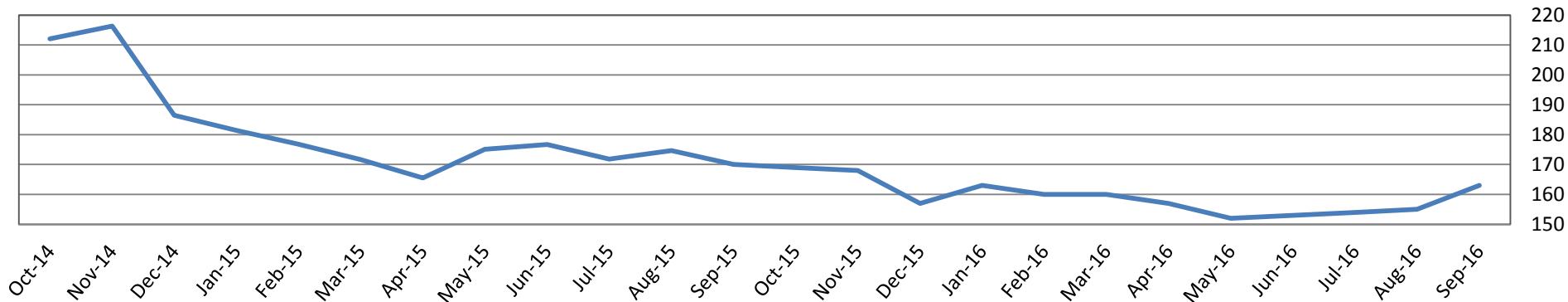
Source: Bloomberg, SIFMA

- *Money market fund reform, which took effect on October 14, has had a meaningful impact on money market yields.*
- *Both LIBOR and SIFMA remain meaningfully higher post-reform which provides an attractive opportunity for funds like OSTF.*

OSTF Portfolio Update

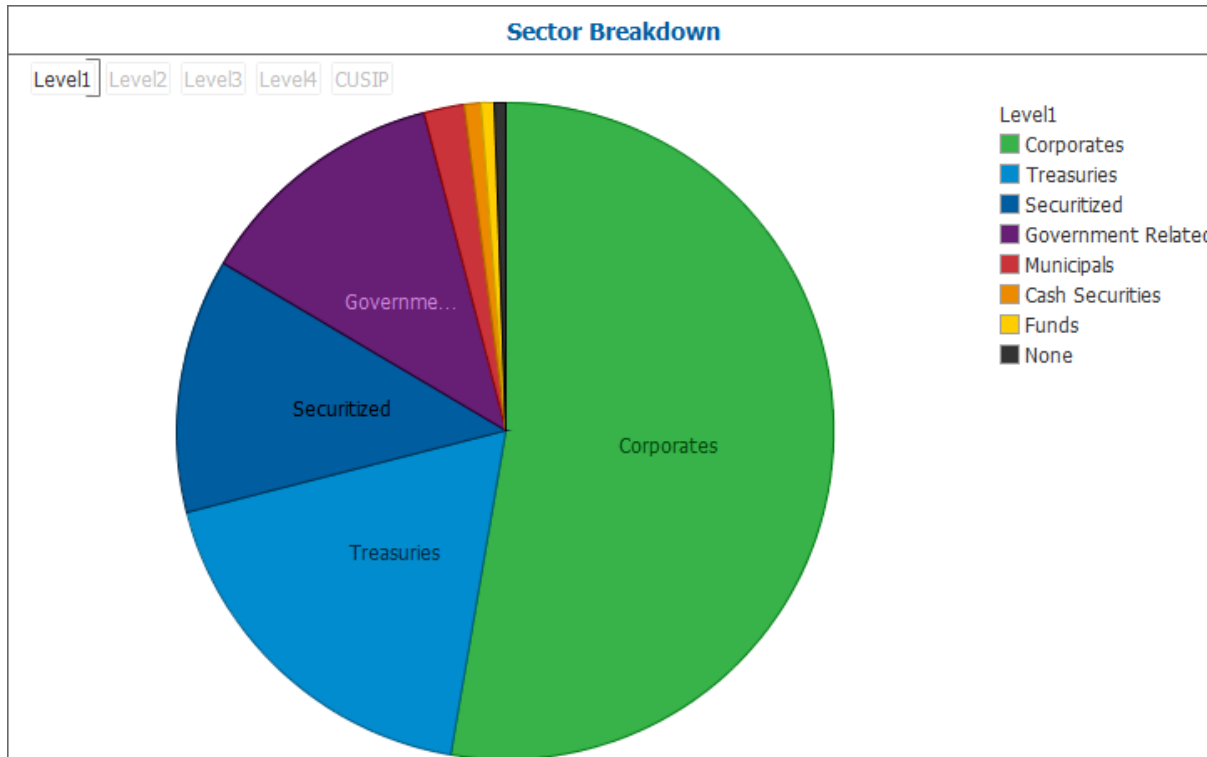
September 30, 2016	
Fund NAV	\$14,015,651,512
Fund NAV/OSTF Balances	\$1.0044
Weighted Average Credit Quality	AA-/Aa2/AA
Book Yield	1.075%
Weighted Average Maturity (days)	163
Duration (Years)	0.44
Spread Duration (Years)	0.87
Rate Paid to Participants	1.03%

OSTF - Weighted Average Maturity



Source: State Street, Bloomberg, OST
WAM calculated per OSTF Policy

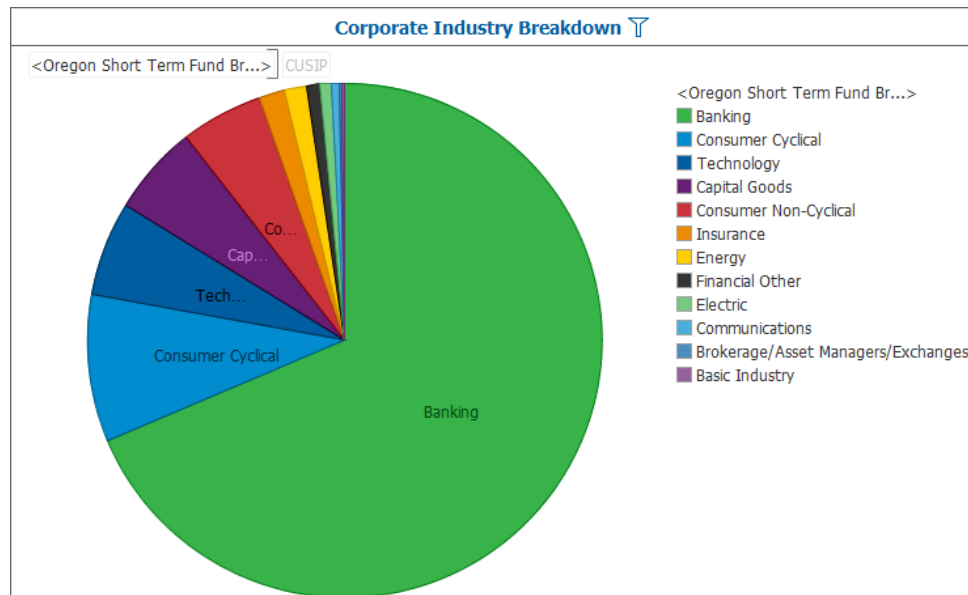
OSTF Sector Breakdown



Sector Breakdown Detail

Security Description	Market Value %	Duration	Duration Contributi	Spread Duratio	Spread Duration	Yield to Maturity	Book Yield (GAAP)
592W	100.0%	0.44	0.44	0.87	0.87	1.01	1.07
+ Treasuries	18.6%	0.49	0.09	0.00	0.00	0.48	0.66
+ Government Related	12.7%	0.30	0.04	0.81	0.10	0.73	0.72
+ Corporates	53.5%	0.41	0.22	1.19	0.64	1.28	1.41
+ Securitized	12.7%	0.56	0.07	0.95	0.12	0.93	0.59
+ Municipals	2.0%	0.02	0.00	0.02	0.00	0.81	0.66
+ Funds	0.7%	2.85	0.02	1.09	0.01	1.14	
+ Cash Securities	-0.8%	0.00	-0.00	0.00	-0.00	0.53	0.53
CASH	0.5%	0.00	0.00	0.00	0.00	0.53	

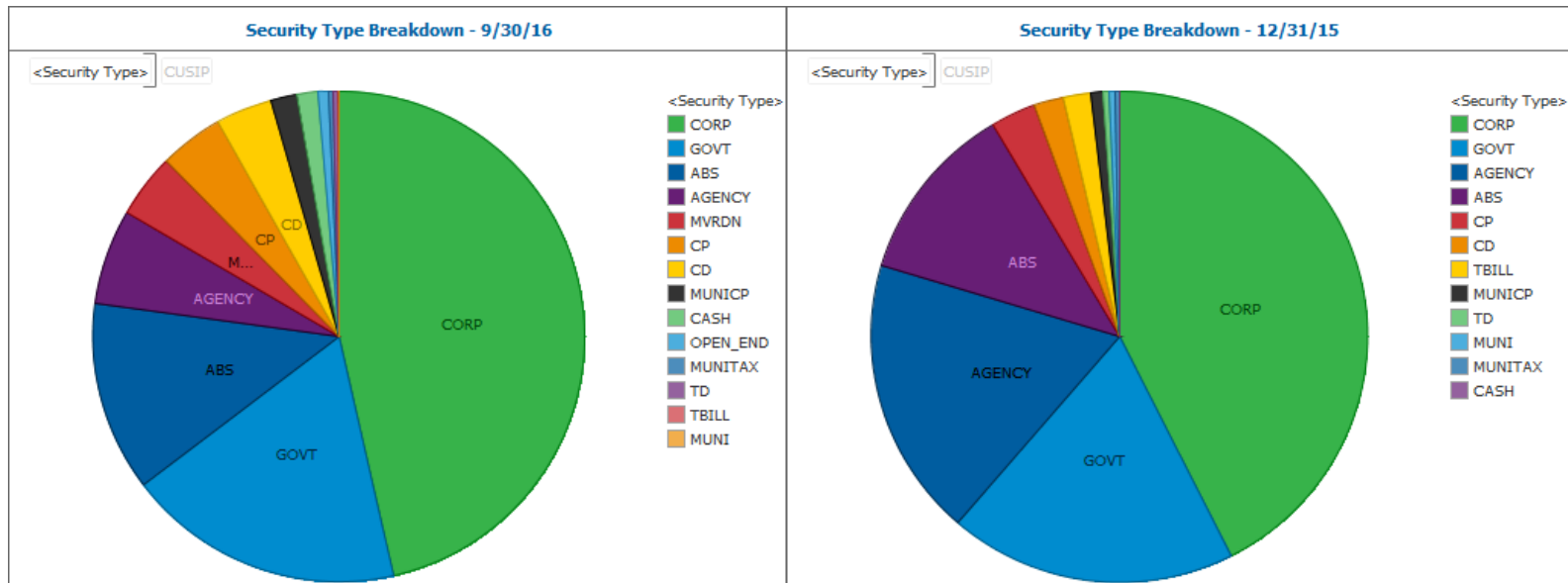
OSTF Corporate Industry Breakdown



Corporate Industry Breakdown Detail

Security Description	Market Value %	Duration	Duration Contribution	Spread Duration	Spread Duration Contribution	Yield to Maturity	Book Yield (GAAP)
592W	53.5%	0.41	0.22	1.19	0.64	1.28	1.41
+ Banking	36.7%	0.39	0.15	1.13	0.41	1.37	1.49
+ Consumer Cyclical	4.9%	0.61	0.03	1.39	0.07	1.13	1.30
+ Technology	3.2%	0.36	0.01	1.59	0.05	1.02	1.23
+ Capital Goods	3.0%	0.35	0.01	1.20	0.04	1.06	1.26
+ Consumer Non-Cyclical	2.7%	0.49	0.01	1.32	0.04	1.08	1.27
+ Insurance	0.9%	0.67	0.01	1.77	0.02	1.03	1.24
+ Energy	0.7%	0.22	0.00	0.93	0.01	1.13	1.20
+ Financial Other	0.4%	0.02	0.00	0.02	0.00	0.89	0.63
+ Electric	0.4%	0.47	0.00	0.81	0.00	0.99	1.15
+ Communications	0.3%	0.03	0.00	2.24	0.01	1.12	1.19
+ Brokerage/Asset Managers/Exchanges	0.1%	0.94	0.00	0.94	0.00	1.17	1.12
+ Basic Industry	0.1%	0.10	0.00	0.10	0.00	1.24	0.99

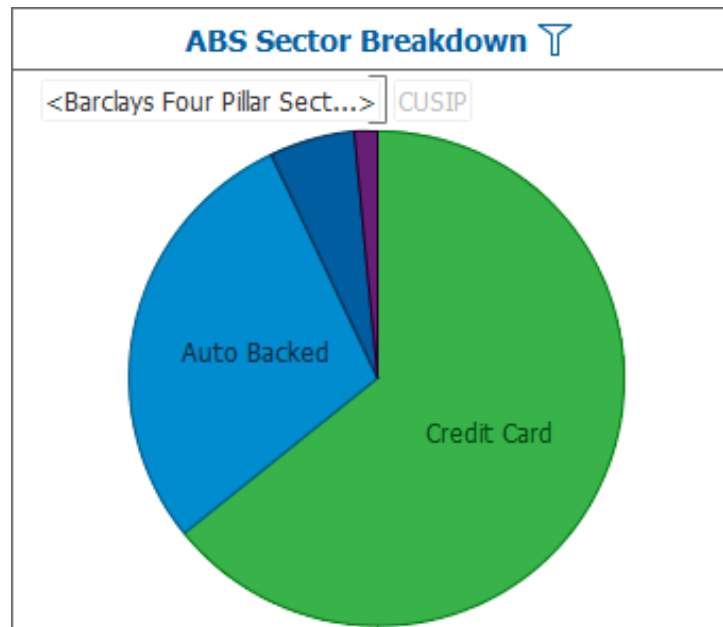
Security Type Breakdown



Security Type Breakdown Detail

Security Description	Market Value %		Duration	Duration Contribution	Spread Duration	Spread Duration Contribution	Yield to Maturity	Book Yield (GAAP)
	Portfolio	Portfolio 12/31/2015						
592W	100.0%	100.0%	0.44	0.44	0.87	0.87	1.01	1.07
+ CORP	47.2%	42.5%	0.46	0.22	1.37	0.65	1.34	1.47
+ GOVT	18.5%	18.8%	0.49	0.09	0.00	0.00	0.49	0.64
+ ABS	12.7%	11.8%	0.56	0.07	0.95	0.12	0.93	0.59
+ AGENCY	6.3%	18.3%	0.25	0.02	0.94	0.06	0.49	0.54
+ MVRDN	4.3%		0.00	0.00	0.00	0.00	0.85	0.63
+ CP	4.2%	3.0%	0.34	0.01	0.39	0.02	1.03	1.05
+ CD	3.7%	1.9%	0.16	0.01	0.32	0.01	0.79	1.01
+ MUNICP	1.8%	0.8%	0.13	0.00	0.13	0.00	0.90	0.84
+ OPEN_END	0.7%		2.85	0.02	1.09	0.01	1.14	
+ MUNITAX	0.3%	0.3%	0.80	0.00	0.80	0.00	0.94	1.09
+ TD	0.3%	0.5%	0.18	0.00	0.18	0.00	0.77	0.77
+ TBILL	0.1%	1.7%	0.01	0.00	0.00	0.00	0.12	3.33
+ MUNI	0.0%	0.3%	0.01	0.00	0.75	0.00	1.23	
+ CASH	-0.3%	0.0%	0.00	-0.00	0.00	-0.00	0.53	0.53

OSTF ABS Breakdown



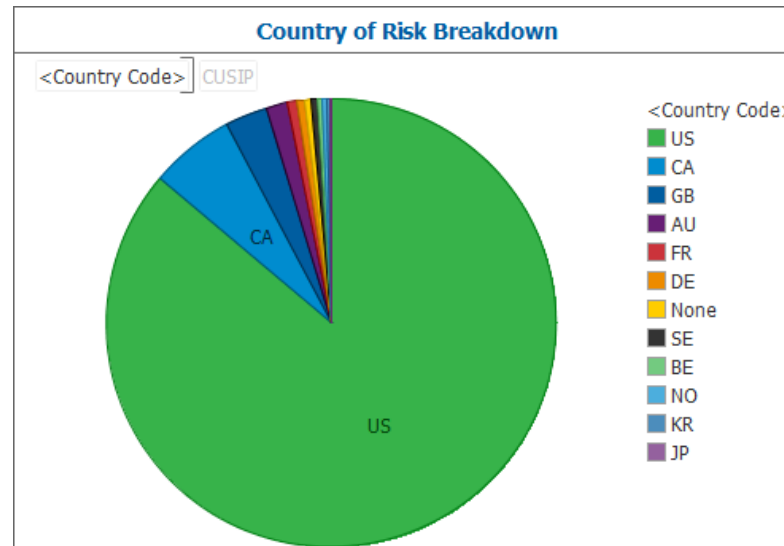
ABS Breakdown Detail ⌵

Security Description	Absolute Market Value %	Market Value (m)	Duration	Spread Duration	WAL to Maturity	Yield to Maturity	Book Yield (GAAP)	Effective Rating
592W	12.7%	1,783,431	0.56	0.95	0.97	0.93	0.59	AAA
ABS	12.7%	1,783,431	0.56	0.95	0.97	0.93	0.59	AAA
+ CREDIT CARD ABS	8.2%	1,144,386	0.55	1.11	1.13	0.90	0.80	AAA
+ AUTO ABS	3.7%	513,317	0.60	0.65	0.65	0.96	-0.01	AAA
+ EQUIPMENT ABS	0.9%	125,728	0.55	0.75	0.76	0.98	1.07	AAA

OSTF Issuer Exposure Breakdown

Issuer Exposure						
Security Description	Market Value %		Duration	Spread Duration	Yield to Maturity	Book Yield (GAAP)
	Portfolio	Portfolio 12/31/2015				
592W	100.0%	100.0%	0.44	0.87	1.01	1.07
+ UNITED STATES TREASURY	18.6%	20.5%	0.49	0.00	0.48	0.66
+ WELLS FARGO BANK NA	3.6%	1.9%	0.17	0.59	0.93	1.18
+ FEDERAL FARM CREDIT BANKS FUNDING CORP	2.7%	3.5%	0.24	1.85	0.74	0.81
+ TOYOTA MOTOR CREDIT CORP	2.7%	1.3%	0.37	1.27	1.15	1.27
+ BANK OF AMERICA NA	2.2%	2.0%	0.37	0.94	1.07	1.45
+ GOLDMAN SACHS GROUP INC/THE	2.2%	1.9%	0.17	1.12	2.22	2.41
+ MORGAN STANLEY	2.2%	2.0%	0.30	1.20	1.43	1.72
+ FEDERAL HOME LOAN BANKS	2.2%	12.6%	0.03	0.05	0.12	0.67
+ CHASE ISSUANCE TRUST	1.9%	1.4%	0.54	1.26	0.86	0.89
+ AMERICAN HONDA FINANCE CORPORATION	1.7%	1.5%	0.60	1.43	1.10	1.28
+ JPMORGAN CHASE BANK NA	1.6%	0.6%	0.25	1.44	1.31	1.37
+ JPMORGAN CHASE & CO	1.6%	1.6%	0.47	1.60	1.59	1.72
+ BANK OF NOVA SCOTIA	1.6%	1.4%	0.48	1.62	1.40	1.52
+ WELLS FARGO & COMPANY	1.6%	1.5%	0.20	1.26	1.26	1.39
+ AMERICAN EXPRESS CREDIT ACCOUNT MASTER TRUST	1.5%	1.2%	0.31	0.82	0.85	0.53
+ AMERICAN EXPRESS CREDIT CORPORATION	1.4%	2.3%	0.37	1.18	1.18	1.35
+ CAPITAL ONE MULTI-ASSET EXECUTION TRUST	1.4%	1.1%	0.74	1.31	0.92	1.20
+ ROYAL BANK OF CANADA	1.4%	1.2%	0.50	1.69	1.29	1.44
+ CREDIT SUISSE AG (NEW YORK BRANCH)	1.3%	0.7%	0.40	0.88	1.47	1.53
+ GENERAL ELECTRIC CAPITAL CORP	1.2%	2.1%	0.19	0.90	1.01	1.15
+ FEDERAL NATIONAL MORTGAGE ASSOCIATION	1.2%	1.4%	0.72	0.72	0.67	-0.28
+ WESTPAC BANKING CORP	1.1%	1.4%	0.41	1.64	1.33	1.48
+ CISCO SYSTEMS INC	1.0%	0.4%	0.24	1.74	1.08	1.30
+ CITIGROUP INC	1.0%	2.0%	0.67	1.41	1.51	1.72
+ INTERNATIONAL BUSINESS MACHINES CORP	1.0%	0.4%	0.12	1.23	0.94	1.18
+ TORONTO-DOMINION BANK/THE	1.0%	0.7%	0.09	1.92	1.37	1.53
+ BARCLAYS BANK PLC	1.0%	0.8%	0.13	0.23	1.69	1.33
+ BA CREDIT CARD TRUST	1.0%		0.36	1.27	0.82	0.22
+ JOHN DEERE CAPITAL CORP	0.9%	0.5%	0.46	1.69	1.10	1.35
+ CHASE BANK USA NA	0.9%	0.8%	0.20	0.47	1.01	1.01
+ PEPSICO INC	0.9%	0.6%	0.08	1.46	0.92	1.14

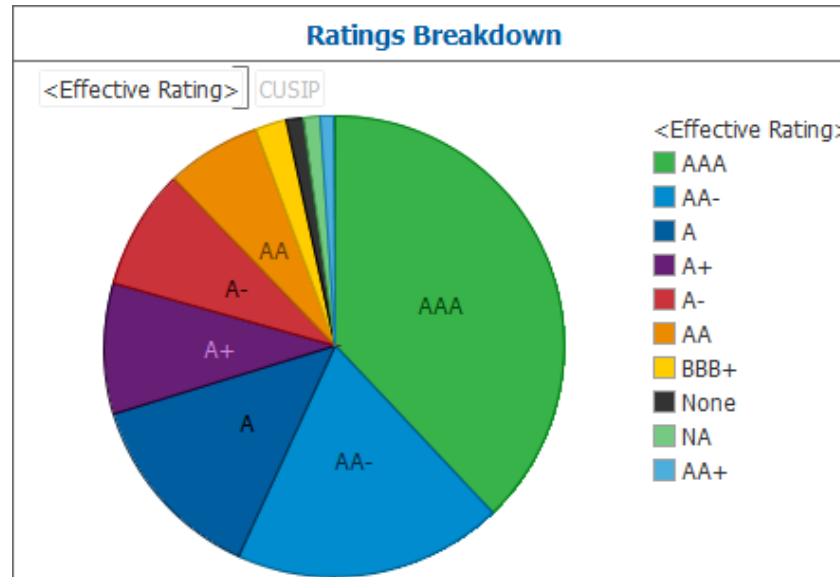
OSTF Country of Risk Breakdown



Country of Risk Breakdown Detail

Security Description	Market Value %		Duration	Duration Contribution	Yield to Maturity	Book Yield (GAAP)
	Portfolio	Portfolio 12/31/2015				
592W	100.0%	100.0%	0.44	0.44	1.01	1.07
+ United States	86.0%	87.2%	0.43	0.37	0.95	1.01
+ Canada	6.2%	6.5%	0.52	0.03	1.31	1.46
+ United Kingdom	3.1%	2.6%	0.32	0.01	1.74	1.37
+ Australia	1.5%	1.5%	0.85	0.01	1.38	1.62
+ France	0.7%	0.9%	0.24	0.00	1.14	1.31
+ Germany	0.6%	0.6%	0.57	0.00	1.01	0.75
+ None	0.5%	-0.0%	0.00	0.00	0.53	
+ Sweden	0.4%		0.95	0.00	1.08	1.17
+ Belgium	0.4%		2.28	0.01	1.48	1.99
+ Norway	0.3%	0.3%	0.55	0.00	1.18	1.20
+ Korea (South), Republic of	0.2%	0.2%	0.05	0.00	1.55	1.52
+ Japan	0.1%	0.1%	0.36	0.00	1.27	1.27
+ Mexico		0.5%				
+ Netherlands		0.1%				
+ Virgin Islands, British		0.1%				

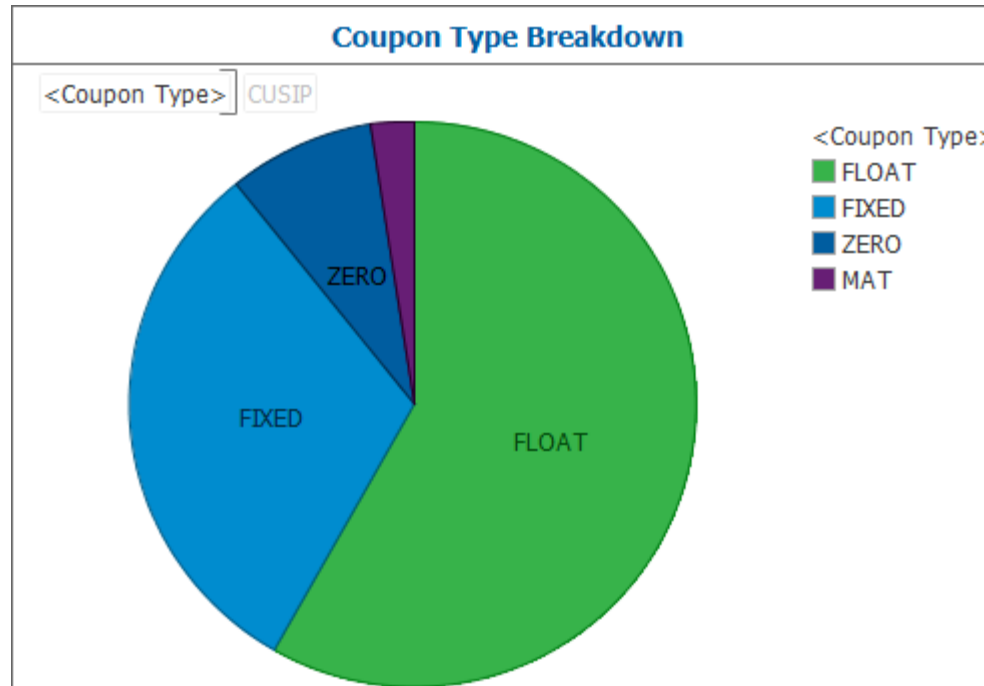
OSTF Credit Profile Breakdown



Ratings Breakdown Detail

Security Description	Market Value %	Duration	Duration Contribution	Yield to Maturity	Book Yield (GAAP)
592W	100.0%	0.44	0.44	1.01	1.07
+ AAA	38.5%	0.50	0.19	0.65	0.62
+ AA+	1.0%	0.47	0.00	1.04	1.26
+ AA	6.8%	0.21	0.01	0.92	1.06
+ AA-	19.2%	0.39	0.08	1.15	1.26
+ A+	9.3%	0.45	0.04	1.17	1.34
+ A	13.7%	0.36	0.05	1.20	1.30
+ A-	8.6%	0.37	0.03	1.63	1.83
+ BBB+	2.2%	0.56	0.01	1.90	1.64
+ NA	-0.5%	-0.18	0.00	0.37	0.37
+ None	1.2%	1.65	0.02	0.88	

OSTF Coupon Type Breakdown

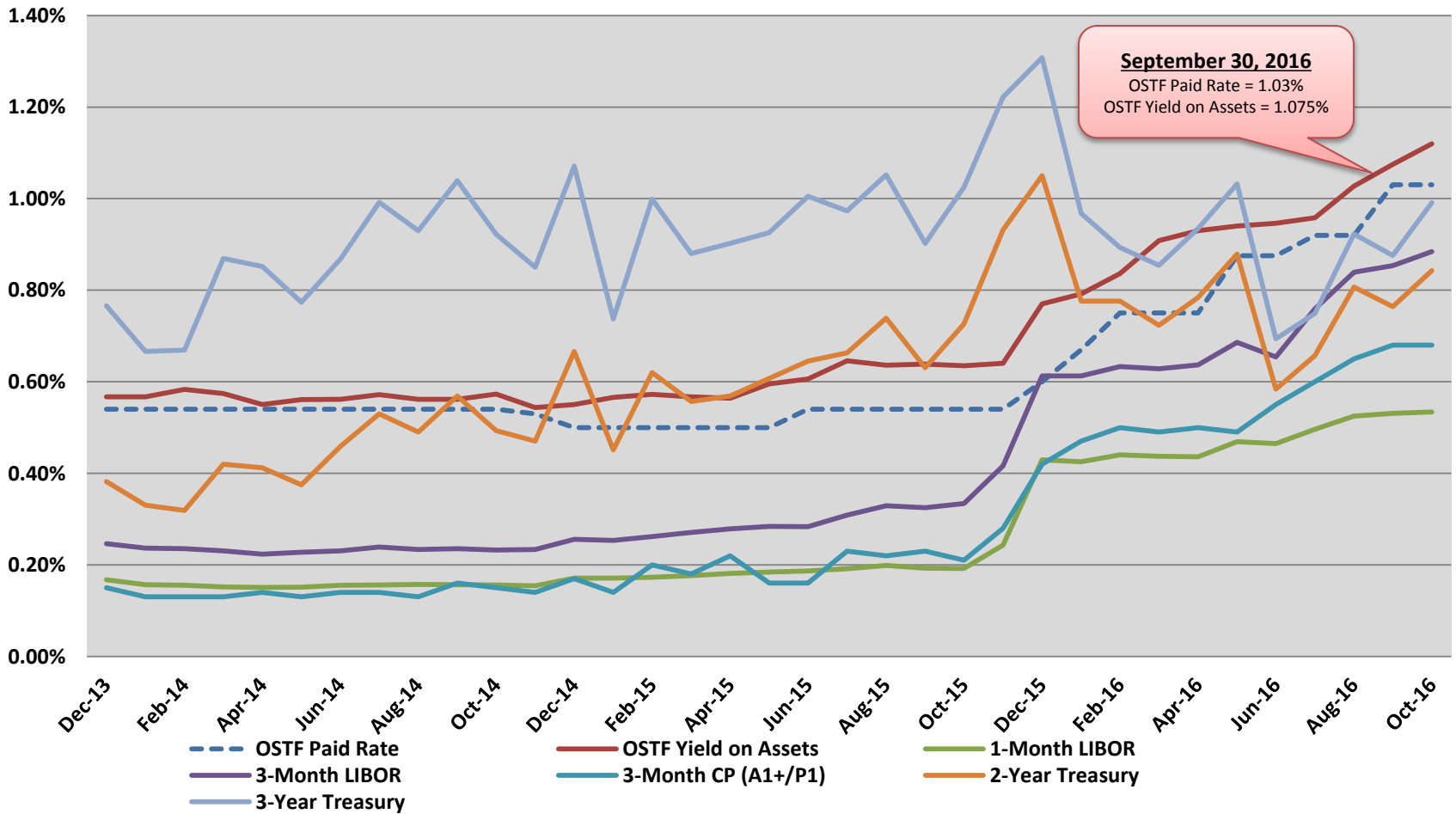


Coupon Type Breakdown Detail

Security Description	Market Value %	Duration	Spread Duration	Yield to Maturity	Book Yield (GAAP)
592W	100.0%	0.44	0.87	1.01	1.07
+ FIXED	31.5%	1.14	0.82	1.08	1.12
+ FLOAT	59.2%	0.10	1.00	1.02	1.06
+ MAT	2.5%	0.23	0.23	0.82	0.90
+ ZERO	6.8%	0.24	0.24	0.67	0.95

OSTF Rates Comparison

OSTF Rates Comparison



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State of Oregon

OREGON SHORT TERM FUND

An Investment Pool of the State of Oregon

Financial Statements

For the Year Ended June 30, 2016

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OREGON SHORT TERM FUND
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FINANCIAL SECTION

Office of the Secretary of State

Jeanne P. Atkins
Secretary of State

Robert Taylor
Deputy Secretary of State



Audits Division

Mary Wenger
Interim Director

255 Capitol St. NE, Suite 500
Salem, OR 97310

(503) 986-2255

Independent Auditor's Report

The Honorable Kate Brown, Governor of Oregon
The Honorable Ted Wheeler, State Treasurer
Oregon Investment Council
Oregon Short Term Fund Board

Report on the Financial Statements

We have audited the accompanying financial statements of the Oregon Short Term Fund, an external investment pool of the State of Oregon, as of and for the year ended June 30, 2016, and the related notes to the financial statements, as listed in the table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Oregon Short Term Fund as of June 30, 2016, and the changes in financial position thereof for the year then ended in conformity with accounting principles generally accepted in the United States of America.

Emphasis of Matter

As discussed in Note 1, the financial statements of the Oregon Short Term Fund, an external investment pool of the State of Oregon, are intended to present the financial position and the changes in financial position of only the Oregon Short Term Fund. They do not purport to, and do not, present fairly the financial position of the Oregon State Treasury or the State of Oregon as of June 30, 2016, or the changes in their financial position for the year then ended in accordance with accounting principles generally accepted in the United States of America. Our opinion is not modified with respect to this matter.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated August 30, 2016, on our consideration of the Oregon State Treasury's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the Oregon State Treasury's internal control over financial reporting and compliance.

Office of the Secretary of State, Audits Division

State of Oregon
August 30, 2016

State of Oregon
OREGON SHORT TERM FUND

Statement of Net Position

June 30, 2016

(Dollars in Thousands)

Assets:

Cash and Cash Equivalents	\$	1,782,518
Investments		12,771,194
Due from Broker on Sale		94,628
Accrued Interest Receivable		24,456
Securities Lending Collateral (Note 3)		375,206
Total Assets		15,048,002

Liabilities:

Due to Broker on Purchase		52,828
Due to Employment Department (Note 5)		15
Due to Fiscal Agent (Note 6)		2,200
Obligations Under Securities Lending (Note 3)		375,206
Total Liabilities		430,249

Net Position:

Held in Trust for Participants		14,617,753
Total Net Position	\$	14,617,753

The accompanying notes are an integral part of the financial statements.

State of Oregon
OREGON SHORT TERM FUND
Statement of Changes in Net Position
For the Year Ended June 30, 2016
(Dollars in Thousands)

Additions:	
Participants' Contributions	\$ 58,026,112
Investment Income, Net of Expenses (Notes 1, 4)	<u>131,039</u>
Total Additions	<u>58,157,151</u>
Deductions:	
Participants' Withdrawals	57,022,677
Distributions of Interest to Participants	94,041
Securities Lending Agent Fee Expense	257
Securities Lending Borrowers' Rebate Expense	<u>1,503</u>
Total Deductions	<u>57,118,478</u>
Change in Assets Held in Trust for Participants	1,038,673
Net Position - Beginning	13,579,080
Net Position - Ending (Note 7)	<u>\$ 14,617,753</u>

The accompanying notes are an integral part of the financial statements.

OREGON SHORT TERM FUND

Notes to Financial Statements

June 30, 2016

(1) Summary of Significant Accounting Policies

Reporting Entity The Oregon Short Term Fund (the Fund) is a short-term cash investment vehicle. A number of local governments in Oregon as well as all State agencies participate in the Fund, thus it is an external investment pool as defined in Statement No. 31 of the Governmental Accounting Standards Board, *Accounting and Financial Reporting for Certain Investments and for External Investment Pools*.

The Fund is not registered with the U.S. Securities and Exchange Commission as an investment company. The State's investment policies are governed by Oregon Revised Statutes and the Oregon Investment Council (the Council). The State Treasurer is the investment officer for the Council and is responsible for all funds entrusted to the Oregon State Treasury (OST). These funds must be invested, and the investments managed, as a prudent investor would, exercising reasonable care, skill and caution. Investments in the Fund are further governed by portfolio guidelines recommended by the Oregon Short Term Fund Board, with Council approval, establishing diversification percentages and specifying the types and maturities of investments. The portfolio guidelines permit securities lending transactions as well as investments in repurchase agreements and reverse repurchase agreements. Portfolio guidelines are discussed in greater detail in the Investments section of Note 2.

According to ORS 293.265 and 295.002, state agencies must deposit all funds with depositories qualified by the OST. Undesignated funds not required to meet current demands are deposited in the Fund; therefore, state agencies are considered involuntary participants of the Fund. Because the Fund operates as a demand deposit account for state agency participants, the portion of the Fund belonging to state agency (internal) participants is classified as cash and cash equivalents in the State's Comprehensive Annual Financial Report. The portion of the Fund belonging to local government (external) participants is reported in an investment trust fund in the State's Comprehensive Annual Financial Report.

Basis of Accounting These statements are prepared using the economic resources measurement focus and the accrual basis of accounting. Trade date accounting is observed, which means that purchases and sales of securities are recorded on the day the trade takes place with a corresponding payable to, or receivable from, the broker. Changes in the fair value of investments are recognized at the end of each year. The fair value of investments is determined annually and is equal to market price.

Cash and Cash Equivalents Investments with original maturities of three months or less are considered cash equivalents and are reported at amortized cost, which approximates fair value. Cash and Cash Equivalents also include cash in banks.

Investments Investments with remaining maturities of fewer than ninety days are carried at amortized cost, provided that the fair value of these instruments is not significantly affected by the impairment of the credit standing of the issuer or by other factors. Amortized cost approximates fair value. Investments with longer maturities are carried at fair value.

Participants' equity; distributions of interest Participants' account balances in the Fund are determined by the amount of participants' deposits, adjusted for withdrawals and distributed interest. The Fund has not provided or received any legally binding guarantees regarding balances in the Fund. Interest is calculated and accrued daily on each participant's account based on the ending account balance and a variable interest rate determined periodically by the OST. When a participant's account is overdrawn, negative interest accrues daily at the determined rate plus a premium. OST accumulates an amount to offset potential losses based on historical default rates, as part of Total Net Position (See Note 7). This balance is reviewed at the end of every month, and is considered in setting the rate paid to participants, exclusive of unrealized gains and losses. Interest is distributed monthly on the last business day of the month. If the last day of the month is a weekend or holiday, interest is accrued through the last calendar day of the month and posted on the last business day.

OREGON SHORT TERM FUND

Notes to Financial Statements

June 30, 2016

GASB Pronouncements GASB Statement No. 72, *Fair Value Measurement and Application*, establishes a framework for measuring fair value and establishes a reporting hierarchy to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. The Fund implemented this standard for the fiscal year ending June 30, 2016. See Note 8 for additional information. GASB Statement No. 79, *Certain External Investment Pools and Pool Participants*, establishes criteria for an external investment pool to qualify for making the election to measure all of its investments at amortized cost for financial reporting purposes. This Statement had no impact on the Fund's financial statements for the year ended June 30, 2016 as the Fund does not meet the criteria and continues to report investments at fair value.

(2) Deposits and Investments

Deposits On June 30, 2016 the Fund held a \$58.0 million book balance in deposits with a bank balance of \$58.6 million. Insurance and collateral requirements for deposits are established by banking regulations and Oregon law. Where interest-bearing balances exceed the Federal Deposit Insurance amount of \$250,000, the balances are covered by collateral held in a multiple financial institution collateral pool (ORS 295.015) administered by the OST in the Public Funds Collateralization Program (PFCP). As of June 30, 2016, \$2.0 million of demand deposits were covered by FDIC insurance and \$56.6 million of demand deposits were collateralized under the PFCP.

Investments On June 30, 2016, the Fund had a net position of \$14.6 billion, \$1.8 billion of which is classified as Cash and Cash Equivalents on the Statement of Net Position. The Fund's portfolio rules establish the Fund's permitted investments and provide guidelines for managing the various types of risk associated with these investments (see the current portfolio rules at [http://www.oregon.gov/treasury/Divisions/Investment/Pages/Oregon-Short-Term-Fund-\(OSTF\).aspx](http://www.oregon.gov/treasury/Divisions/Investment/Pages/Oregon-Short-Term-Fund-(OSTF).aspx)). The different risks are discussed below.

A. Interest rate and credit risk

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. The Fund staff manages this risk by limiting the period of the reset date (reset) or maturity of the investments held by the Fund. The portfolio rules require that at least 50 percent of the portfolio mature or reset within 93 days; not more than 25 percent of the portfolio may mature or reset in over a year; and no investments may mature or reset over three years from settlement date. The June 30, 2016 holdings are shown in the schedule below. For variable rate securities, the next interest rate reset date is used instead of the maturity date. For variable rate securities, in a fixed rate period that will switch to variable rate at a later date, the maturity is based on the final maturity of the security, not the next variable reset date. For fixed rate securities with a put option, the date upon which the put option is fully exercisable for at least 100% of the face value is used instead of the maturity date, and for variable rate securities with a put option, the earlier of the next variable reset date or the put date is used instead of the maturity date. For asset-backed securities, the weighted average life will be used as a proxy for the maturity date.

Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligation. The Fund's policies provide for a composite minimum weighted average credit quality rating for the Fund's holdings to be the equivalent of a AA Standard and Poor's (S&P) rating. This composite is calculated based on the median rating if three agencies rate the security, the lower rating if two ratings are available, or the single rating if only one rating is available. On June 30, 2016, the fund's composite weighted average rating was equivalent to S&P's AA based on the method described above. U.S. Treasuries and all unrated federal agency securities were also assumed to be rated AAA for the composite rating, as these securities are backed by the U.S. government.

OREGON SHORT TERM FUND

Notes to Financial Statements

June 30, 2016

The minimum ratings for corporate notes at the time of purchase are an S&P rating of A-, a Moody's rating of A3 or a Fitch rating of A-. Commercial paper is required to have a minimum short-term credit rating at the time of purchase from two of three ratings services; minimum ratings are S&P of A-1, Moody's of P-1 and Fitch of F-1. Foreign government securities are required to have a minimum credit rating from S&P of AA-, Moody's of Aa3 or Fitch of AA-. Asset-backed securities are required to have long-term ratings of AAA, Aaa or AAA, or short-term ratings of A-1+, P-1 or F-1+ by S&P, Moody's, and Fitch, respectively.

Fund policies allow securities downgraded below the minimum required ratings at the time of purchase to be retained at the Director of Capital Markets' discretion. Rating groups were determined using the lowest actual rating from S&P, Moody's or Fitch, and are shown below:

Interest Rate and Credit Risk (Dollars in Thousands)

Classification	Rating	Interest Rate and Credit Risk			Total	Par Value
		93 Days or Less	94-366 Days	One to Three Years		
U.S. Treasury	Not Rated	\$ 1,840,318	\$ 455,916	\$ 617,210	\$ 2,913,444	\$ 2,909,500
Agency Securities	Not Rated(3)	3,900	-	-	3,900	
	AAA	309,834	25,028	90,429	425,291	
	AA	35,046	-	75,261	110,307	
		<u>348,780</u>	<u>25,028</u>	<u>165,690</u>	<u>539,498</u>	538,900
Agency Discount Notes	Not Rated(3)	815,867	4,704	-	820,571	820,761
Municipal Commercial Paper	A-1+	272,226	-	-	272,226	272,260
Municipal Obligations	AAA	-	-	19,007	19,007	
	AA	24,415	-	11,000	35,415	
	A	-	15,075	-	15,075	
		<u>24,415</u>	<u>15,075</u>	<u>30,007</u>	<u>69,497</u>	69,350
Non U.S. Government Commercial Paper	A-1+	240,406	24,903	-	265,309	265,600
Non U.S. Government Obligations	AAA	59,986	30,130	30,107	120,223	
	AA	151,943	34,559	60,681	247,183	
	A	24,954	-	20,050	45,004	
		<u>236,883</u>	<u>64,689</u>	<u>110,838</u>	<u>412,410</u>	410,730
Corporate Commercial Paper	A-1+	94,956	69,682	-	164,638	
	A-1	60,000	24,826	-	84,826	
		<u>154,956</u>	<u>94,508</u>	<u>-</u>	<u>249,464</u>	250,000
Corporate Obligations	AA	1,446,700	55,056	337,919	1,839,675	
	A	3,381,221	145,820	531,467	4,058,508	
	BBB(1)	210,840	20,028	142,305	373,173	
		<u>5,038,761</u>	<u>220,904</u>	<u>1,011,691</u>	<u>6,271,356</u>	6,253,302
Asset-Backed Securities	AAA	878,356	617,008	334,371	1,829,735	
	A-1+	75,107	28,137	-	103,244	
		<u>953,463</u>	<u>645,145</u>	<u>334,371</u>	<u>1,932,979</u>	1,929,418
Negotiable Certificates of Deposit	AA	350,000	172,850	-	522,850	
	A	115,000	30,000	-	145,000	
		<u>465,000</u>	<u>202,850</u>	<u>-</u>	<u>667,850</u>	667,850
Time Certificates of Deposit	Not Rated(2)	81,100	-	-	81,100	81,100
Cash	Not Rated	58,008	-	-	58,008	58,008
	Total	<u>\$ 10,530,183</u>	<u>\$ 1,753,722</u>	<u>\$ 2,269,807</u>	<u>\$ 14,553,712</u>	<u>\$ 14,526,779</u>

¹ Securities rated BBB on this table continue to meet investment quality rules as discussed above, as they have at least one rating of S&P A-, Moody's A3 or Fitch A.

² TCD's are considered deposits for purposes of credit quality, and are fully covered by FDIC and state PFCP programs.

³ Federal Agency securities, which are not rated by the credit rating agencies as they carry an implicit guarantee of the U.S. Government.

OREGON SHORT TERM FUND
Notes to Financial Statements
June 30, 2016

B. Custodial credit risk

Custodial credit risk for investments is the risk that, in the event of a transactional counterparty failure, the government will not be able to recover the value of an investment or collateral securities in the possession of an outside party. The Fund's portfolio rules provide that broker/dealers meet certain qualifications and that investments are delivered to and held by a third-party custodian, which holds the Fund's securities in the State of Oregon's name. Time certificates of deposit (TCDs) are not exposed to custodial credit risk, as they are covered by FDIC insurance of \$0.9 million and the balance of \$80.2 million is covered by the PFCP (ORS 295.015) administered by the OST.

C. Concentration of credit risk

Concentration of credit risk is the risk of loss attributed to the magnitude of a government's investment in a single issuer. The Fund rules provide that the maximum that may be invested in any one issuer, as a percentage of the fund's total investments, is 33 percent for U.S. Agency securities, 10 percent for both municipals and foreign governments and instrumentalities, 5 percent for corporate securities, asset-backed securities and negotiable certificates of deposit and 10 percent for all securities and support commitments with the exception of U.S. Treasury (100 percent) and Government Agency securities (33 percent per issuer). On June 30, 2016, the Fund did not hold investments with any one issuer that exceeded these limits. The schedule below lists issuers where holdings are greater than 5 percent at the parent level.

Schedule of Parent Level Issuers – Holdings Greater Than Five Percent
(Dollars in Thousands)

<u>Issuer Name</u>	<u>Reported Amount</u>	<u>Percent of Holding</u>
U.S. Treasury	\$2,913,444	20.10%
Wells Fargo & Company	797,360	5.50%
Federal Home Loan Bank	731,114	5.04%

D. Foreign currency risk

The Fund portfolio rules prohibit investments that are not U.S. dollar-denominated; therefore, the Fund is not exposed to this risk.

(3) Securities Lending

The OST has authorized its custodian to act as its agent in lending the Fund's securities pursuant to a form of loan agreement, in accordance with Fund investment policies. There have been no significant violations of the provisions of the securities lending agreement. The State's securities lending agent lent short-term and fixed income securities and received as collateral U.S. dollar-denominated cash and U.S. Treasury securities. Borrowers were required to deliver collateral for each loan equal to not less than 102 percent of the market value of the loaned security. The State may pledge or sell the collateral securities received only in the event of a borrower default. The State has the ability to impose restrictions on the amount of the loans that the securities lending agent made on its behalf. Several such restrictions were made during the year ended June 30, 2016. The State is fully indemnified by its securities lending agent against losses due to borrower default. There were no losses during the year from the failure of borrowers to return loaned securities.

OREGON SHORT TERM FUND

Notes to Financial Statements

June 30, 2016

The Fund's lending agent uses a fund to reinvest cash collateral received on behalf of the Fund and other Oregon state agencies managed by the OST, exclusive of the Oregon Public Employees Retirement Fund. At June 30, 2016 the Fund's allocated portion of the market value of repurchase agreements held by the fund was approximately \$137,000,000. Effective January 2014, the guidelines for the reinvestment of cash collateral were revised with further constraints to reduce overall risk. As permitted under the fund's Declaration of Trust (Declaration), participant purchases and redemptions are transacted at \$1.00 per unit ("constant value") based on the amortized cost of the fund's investments. Accordingly, the securities lending collateral held and the obligation to the lending agent are both stated at constant value on the Statement of Net Position. The balances of securities on loan, collateral received and invested collateral at market value are presented in the schedule below.

**Schedule of Securities Lending Balances
(Dollars in Thousands)**

	Securities on Loan at			Invested Cash Collateral at	
	Fair Value	Collateral Received		Fair Value	Fair Value
U.S. Agency Securities	\$ 66,701	\$ 68,035	1	\$ 43,559	
U.S. Treasury	398,746	407,030	2	296,103	
Corporate Notes	43,230	44,127	3	35,665	
Total	<u>\$ 508,677</u>	<u>\$ 519,192</u>		<u>\$ 375,327</u>	

1 Cash Collateral \$43,545, U.S. Agency \$24,490

2 Cash Collateral \$296,007, U.S Treasury \$111,023

3 Cash Collateral \$35,654, Corporate Notes \$8,473

The State and borrowers maintained the right to terminate all securities lending transactions on demand. As a consequence, the maturities of investments made with cash collateral generally do not match the maturities of the securities loans. As of June 30, 2016, the State had no credit risk exposure to borrowers related to securities on loan.

(4) Management Fees

In accordance with ORS 293.718, the OST may deduct monthly 0.435 basis points of the most recent market value of assets under management for administration and portfolio management. For the year ended June 30, 2016 the OST charged the Fund a monthly rate of 0.30 basis points based on average daily balances in the Fund. The fee is deducted from investment income before distributions to participants. Fees charged to the Fund totaled \$6.2 million for the year ended June 30, 2016.

(5) Payable to the Oregon Employment Department

The OST maintains accounts separate from the Fund which contains employment benefit and trust funds in the name of the Oregon Employment Department (Employment), which is also a participant in the Fund. The OST processes transfers of employment taxes and benefit payments between state agencies and Employment. Occasionally a transfer will be recorded between participants' accounts on one day, but the transfer of cash between the Fund and the employment benefit and trust funds does not take place until the following day, creating either a receivable from or payable to Employment.

OREGON SHORT TERM FUND

Notes to Financial Statements

June 30, 2016

(6) Payable to Fiscal Agent

The OST collects debt service payments from general obligation debt issuing agencies and forwards them on to the fiscal agent, which makes bond interest and principal payments to bond holders. OST maintains accounts separate from the Fund in which the payments to the fiscal agent are recorded. Occasionally a debt service payment will be received at OST before the funds are actually forwarded to the fiscal agent, creating a payable to the fiscal agent.

(7) Equity of Internal and External Participants

The following table describes the equity of internal and external participants in the Fund's net position, and shows that net position is composed of participants' account balances less undistributed and unrealized gains:

Net position held in trust for participants (in thousands):	
Equity of internal participants	\$ 8,789,338
Equity of external participants	<u>5,828,415</u>
	<u>\$ 14,617,753</u>
Net position consist of (in thousands):	
Participants' Account Balances	\$ 14,530,370
Undistributed and Unrealized Gains	23,714
Allowance for Potential Defaults	<u>63,669</u>
	<u>\$ 14,617,753</u>
Participants' Fair Value (Net Position divided by Participants' Account Balances)	<u>100.60%</u>

(8) Fair Value Measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Observable inputs are developed based on market data obtained from sources independent of the reporting entity. Unobservable inputs are developed based on the best information available about the assumptions market participants would use in pricing the asset. The classification of securities within the fair value hierarchy is based upon the activity level in the market for the security type and the inputs used to determine their fair value, as follows:

- Level 1 – Unadjusted quoted prices for identical instruments in active markets.
- Level 2 – Quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations in which all significant inputs are observable.
- Level 3 – Valuations derived from valuation techniques in which significant inputs are unobservable.

OREGON SHORT TERM FUND
Notes to Financial Statements
June 30, 2016

Fair Value Measurements
(Dollars in Thousands)

	Assets and Liabilities at Fair Value as of June 30, 2016			
	Level 1	Level 2	Level 3	Total
Investments:				
U.S. Treasury	\$ -	\$ 2,653,956	\$ -	\$ 2,653,956
Agency Securities	-	535,599	-	535,599
Agency Discount Notes	-	4,704	-	4,704
Municipal Obligations	-	45,082	-	45,082
Non U.S. Government Commercial Paper	-	174,242	-	174,242
Non U.S. Government Obligations	-	392,411	-	392,411
Corporate Commercial Paper	-	94,508	-	94,508
Corporate Obligations	-	6,239,863	-	6,239,863
Asset-Backed Securities	-	1,932,979	-	1,932,979
Negotiable Certificates of Deposit	-	667,850	-	667,850
Time Certificates of Deposit	-	30,000	-	30,000
Total	\$ -	\$ 12,771,194	\$ -	\$ 12,771,194

The Fund's investments, other than those with remaining maturities of fewer than ninety days, are valued using the latest bid prices or evaluated quotes from independent pricing vendors. The third-party vendors use a variety of methods when pricing these securities that incorporate relevant observable market data to arrive at an estimate of what a buyer in the marketplace would pay for a security under current market conditions. Investments with remaining maturities of fewer than ninety days are carried at amortized cost, which approximates fair value. All of the Fund's investments at June 30, 2016 are considered level 2.

OTHER REPORTS

Office of the Secretary of State

Jeanne P. Atkins
Secretary of State

Robert Taylor
Deputy Secretary of State



Audits Division

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Independent Auditor's Report On Internal Control Over Financial Reporting And On Compliance And Other Matters Based On An Audit Of Financial Statements Performed In Accordance With *Government Auditing Standards*

The Honorable Kate Brown, Governor of Oregon
The Honorable Ted Wheeler, State Treasurer
Oregon Short Term Fund Board
Oregon Investment Council

We have audited, in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States, the financial statements of the Oregon Short Term Fund, an external investment pool of the State of Oregon, as of and for the year ended June 30, 2016, and the related notes to the financial statements and have issued our report thereon dated August 30, 2016.

Internal Control Over Financial Reporting

In planning and performing our audit of the financial statements, we considered the Oregon State Treasury's internal control over financial reporting (internal control) to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the Oregon State Treasury's internal control. Accordingly, we do not express an opinion on the effectiveness of Oregon State Treasury's internal control.

A deficiency in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. *A material weakness* is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis. *A significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the Oregon Short Term Fund's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

Purpose of this Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the entity's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the entity's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

Office of the Secretary of State, Audits Division

State of Oregon
August 30, 2016



OSTF Compliance Summary
As of September 30, 2016

	<u>In Compliance</u>	<u>Objective</u>	<u>Actual</u>
Maturity Distribution of Portfolio (see Notes 1 - 4)			
Percent of Portfolio to Mature Within 93 Days	YES	>50%	67.47%
Percent of Portfolio to Mature Over One Year	YES	<25%	16.80%
Securities Maturing In Over 3 Years From Settlement	YES	0%	0.00%

Diversification & Limitations of Portfolio

Asset Class Diversification

Corporate Securities (total including bonds and commercial paper)	YES	<50%	48.42%
Time Certificates of Deposit	YES	<20%	0.26%
Negotiable Certificates of Deposit	YES	<20%	3.74%
Bankers' Acceptance	YES	<20%	0.00%
Asset Backed Securities	YES	<15%	12.72%
Foreign Government and Instrumentalities	YES	< 25%	2.88%
Foreign Government and Foreign Corporate Debt	YES	< 25%	13.52%
Municipal debt	YES	< 25%	6.45%
Non-US dollar denominated securities	YES	0%	0.00%
Oregon Local Government Intermediate Fund (see Note 8)	YES	< \$ 250 million	\$99.97 million

Issuer Diversification

Agency Securities, maximum per issuer	YES	< 33%	2.68%
Corporate securities, maximum per issuer (excl. CDs)	YES	< 5%	2.67%
Individual issuer or support commitment (Parent-level, excl UST or Agencies)	YES	< 10%	5.52%
Foreign Government securities maximum per issuer	YES	< 10%	0.59%
Municipal debt, maximum per issuer	YES	< 10%	0.62%
Asset Backed Securities, maximum per issuing trust	YES	< 5%	1.91%
Negotiable Certificates of Deposit, maximum per issuer	YES	< 5%	2.45%
Bankers' Acceptances, maximum per issuer	YES	< 5%	0.00%

Credit Quality

Portfolio Weighted Average Credit Quality (see Note 5)	YES	> 26.50	26.54
Downgraded & other securities, see Note 6-7			

Trade Commitments

No Open trades > 14 business days from trade to settle	YES	0	0
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Other Fund Information

Weighted Average Maturity (see Notes 1 - 4)		161 days
Oregon Short Term Fund Paid Rate	Weighted Average (September)	0.938%
	Sep 1 - 25	0.920%
	Sep 26 - 30	1.030%



**OSTF Compliance Summary
As of September 30, 2016**

Notes

- (1) For securities that have been called by the issuer, the effective call date is used as a proxy for the maturity date.
- (2) For securities with a put option, the date upon which the put option is fully exercisable for a value of at least 100% of the investment's par or face amount is used as a proxy for the maturity date.
- (3) For variable rate securities, the period remaining to the next reset date is used as a proxy for the maturity date.
- (4) For Asset Backed Securities, the weighted average life is used as a proxy for the maturity date, except for variable-rate ABS, which use the period remaining to the next reset date as a proxy for the maturity date.
- (5) By policy, credit ratings are assigned a numeric value to determine weighted average credit quality, as follows: AAA/Govt/Agncy = 29, AA+ = 28, AA = 27, AA- = 26, etc. The calculation does not include Time Certificates of Deposit, which are unrated securities.
- (6) Securities downgraded after purchase:

The following securities were downgraded after purchase and on the report date had the ratings shown below. By policy, securities downgraded below minimum at time of purchase may be sold or held at the discretion of the Senior Investment Officer/designee.

Security	CUSIP	Position (000)	S&P	Moody's Rating	Fitch
BANK OF AMERICA CORP	06051GEZ8	20,000	BBB+	Baa1	A
BANK OF AMERICA CORP	06051GFK0	33,500	BBB+	Baa1	A
BANK OF AMERICA CORP	06051GFJ3	15,000	BBB+	Baa1	A
BANK OF AMERICA CORP	06051GET2	11,652	BBB+	Baa1	A
BANK OF AMERICA CORP	06051GFR5	15,000	BBB+	Baa1	A
CITIGROUP INC	172967HY0	20,000	BBB+	Baa1	A
CITIGROUP INC	172967JD4	10,000	BBB+	Baa1	A
CITIGROUP INC	172967JE2	20,000	BBB+	Baa1	A
CITIGROUP INC	172967JH5	15,000	BBB+	Baa1	A
CITIGROUP INC	172967JQ5	25,000	BBB+	Baa1	A
CITIGROUP INC	172967JN2	20,000	BBB+	Baa1	A
CITIGROUP INC	172967JV4	35,000	BBB+	Baa1	A
CAPITAL ONE NA/MCLEAN VA	14042E3Z1	10,000	BBB+	Baa1	A-
CAPITAL ONE NA	14042E4K3	10,000	BBB+	Baa1	A-
DB FLOAT 02/13/17	25152RVQ3	50,000	BBB+	Baa2	A-
STATOIL ASA	85771PAU6	25,000	A+	Aa3	NR
STATOIL ASA	85771PAT9	20,000	A+	Aa3	NR

- (7) Pasadena SD Muni (CUSIP 702282NB6) currently below at-purchase ratings requirements, under newly adopted system.
- (8) The Oregon Local Government Intermediate Fund is a commingled investment pool for local governments. More info is available at: <https://www.oregon.gov/treasury/Divisions/Investment/Pages/OLGIF.aspx>



OSTF Compliance Summary Additional Legal Information

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OSTF Holdings Detail - as of September 30, 2016

Security Type	Issuer Name	CUSIP	Maturity	Coupon Type	Coupon	Par Value (m)
ABS	ALLY AUTO RECEIVABLES TRUST 2014-2	02006WAC3	04/15/2019	FIXED	1.250	5,289
ABS	ALLY AUTO RECEIVABLES TRUST ALLYA_16-1	02007CAB8	08/15/2018	FIXED	1.200	5,306
ABS	AMERICAN EXPRESS CREDIT ACCOUNT MASTER TRUST	02587HAA7	01/15/2020	FLOAT	0.794	11,000
ABS	AMERICAN EXPRESS CREDIT ACCOUNT MASTER TRUST	02582JGY0	05/15/2020	FLOAT	0.814	10,500
ABS	AMERICAN EXPRESS CREDIT ACCOUNT MASTER TRUST	02582JHA1	01/15/2020	FLOAT	0.814	20,000
ABS	AMERICAN EXPRESS CREDIT ACCOUNT MASTER TRUST	02582JGU8	04/15/2020	FIXED	1.490	34,500
ABS	AMERICAN EXPRESS CREDIT ACCOUNT MASTER TRUST	02582JGJ3	05/15/2019	FIXED	0.980	45,720
ABS	AMERICAN EXPRESS CREDIT ACCOUNT MASTER TRUST	02582JGS3	01/15/2020	FIXED	1.260	38,725
ABS	BA CREDIT CARD TRUST	05522RCT3	06/15/2020	FLOAT	0.854	13,000
ABS	BA CREDIT CARD TRUST	05522RCV8	10/15/2021	FLOAT	0.914	28,000
ABS	BA CREDIT CARD TRUST	05522RCR7	09/16/2019	FLOAT	0.794	30,000
ABS	BA CREDIT CARD TRUST	05522RAS7	06/15/2019	FIXED	5.170	12,500
ABS	BA CREDIT CARD TRUST	05522RCU0	09/15/2020	FIXED	1.360	26,000
ABS	BA CREDIT CARD TRUST	05522RCS5	01/15/2020	FLOAT	0.814	25,000
ABS	BARCLAYS DRYROCK ISSUANCE TRUST	06742LAM5	05/16/2022	FIXED	1.520	11,000
ABS	BARCLAYS DRYROCK ISSUANCE TRUST	06742LAA1	12/16/2019	FLOAT	0.884	7,125
ABS	BARCLAYS DRYROCK ISSUANCE TRUST	06742LAL7	08/16/2021	FIXED	1.720	8,000
ABS	BARCLAYS DRYROCK ISSUANCE TRUST	06742LAC7	03/16/2020	FLOAT	0.864	21,240
ABS	CAPITAL ONE MULTI-ASSET EXECUTION TRUST	14041NFA4	08/16/2021	FIXED	1.450	15,000
ABS	CAPITAL ONE MULTI-ASSET EXECUTION TRUST	14041NEY3	05/17/2021	FIXED	1.600	9,000
ABS	CAPITAL ONE MULTI-ASSET EXECUTION TRUST	14041NEP2	01/15/2020	FIXED	1.260	30,910
ABS	CAPITAL ONE MULTI-ASSET EXECUTION TRUST	14041NFC0	02/15/2022	FLOAT	0.974	40,000
ABS	CAPITAL ONE MULTI-ASSET EXECUTION TRUST	14041NEN7	11/15/2019	FLOAT	0.880	25,000
ABS	CAPITAL ONE MULTI-ASSET EXECUTION TRUST	14041NEU1	01/15/2021	FIXED	1.390	30,000
ABS	CAPITAL ONE MULTI-ASSET EXECUTION TRUST	14041NEZ0	06/15/2020	FLOAT	0.894	14,500
ABS	CAPITAL ONE MULTI-ASSET EXECUTION TRUST	14041NDL2	12/16/2019	FLOAT	0.604	10,950
ABS	CAPITAL ONE MULTI-ASSET EXECUTION TRUST	14041NEM9	09/16/2019	FIXED	0.960	10,000
ABS	CAPITAL ONE MULTI-ASSET EXECUTION TRUST	14041NFE6	04/15/2022	FIXED	1.340	15,000
ABS	CARMAX AUTO OWNER TRUST CARMX_16-1	14313YAH1	04/15/2019	FLOAT	1.054	8,027
ABS	CARMAX AUTO OWNER TRUST CARMX_16-3	14314EAB7	08/15/2019	FIXED	1.170	19,000
ABS	CHASE ISSUANCE TRUST	161571GZ1	05/15/2019	FLOAT	0.774	35,000
ABS	CHASE ISSUANCE TRUST	161571GC2	10/15/2018	FIXED	1.010	26,500
ABS	CHASE ISSUANCE TRUST	161571HC1	06/15/2021	FIXED	1.370	10,000
ABS	CHASE ISSUANCE TRUST	161571GJ7	01/15/2019	FIXED	1.150	36,750
ABS	CHASE ISSUANCE TRUST	161571GS7	02/15/2020	FLOAT	0.844	13,000

ABS	CHASE ISSUANCE TRUST	161571HA5	07/15/2020	FIXED	1.620	15,000
ABS	CHASE ISSUANCE TRUST	161571HF4	07/15/2021	FIXED	1.270	10,000
ABS	CHASE ISSUANCE TRUST CHAIT_15-A5	161571GY4	04/15/2020	FIXED	1.360	5,000
ABS	CHASE ISSUANCE TRUST CHAIT_15-A5	161571GT5	02/18/2020	FIXED	1.590	28,000
ABS	CHASE ISSUANCE TRUST CHAIT_16-A1	161571HB3	05/17/2021	FLOAT	0.934	45,000
ABS	CITIBANK CREDIT CARD ISSUANCE TRUST	17305EFF7	09/10/2020	FLOAT	0.948	10,000
ABS	CITIBANK CREDIT CARD ISSUANCE TRUST	17305EFN0	02/22/2019	FIXED	1.020	30,000
ABS	CNH EQUIPMENT TRUST CNH_12-D	12624HAD5	11/15/2019	FIXED	0.870	2,830
ABS	CNH EQUIPMENT TRUST CNH_14-A	12591BAC9	05/15/2019	FIXED	0.840	7,042
ABS	CNH EQUIPMENT TRUST CNH_15-B	12592YAC8	08/15/2018	FLOAT	0.814	1,805
ABS	CNH EQUIPMENT TRUST CNH_15-B	12592YAB0	08/15/2018	FIXED	0.840	1,474
ABS	CNH EQUIPMENT TRUST CNH_15-C	12593NAC1	12/17/2018	FLOAT	0.994	7,348
ABS	CNH EQUIPMENT TRUST CNH_16-A	12594BAC6	07/15/2019	FLOAT	1.044	9,000
ABS	CNH EQUIPMENT TRUST CNH_16-A	12594BAA0	03/10/2017	FIXED	0.670	1,923
ABS	CNH EQUIPMENT TRUST CNH_16-B	12594DAC2	10/15/2019	FLOAT	0.924	12,500
ABS	CNH EQUIPMENT TRUST CNH_16-C	12635YAA1	10/10/2017	FIXED	0.750	11,750
ABS	CNH EQUIPMENT TRUST CNH_16-C	12635YAD5	12/15/2021	FIXED	1.440	3,500
ABS	DISCOVER CARD EXECUTION NOTE TRUST	254683BH7	08/15/2019	FLOAT	1.017	10,000
ABS	DISCOVER CARD EXECUTION NOTE TRUST	254683BQ7	03/15/2021	FIXED	1.450	10,000
ABS	DISCOVER CARD EXECUTION NOTE TRUST	254683BM6	08/17/2020	FLOAT	0.874	11,000
ABS	DISCOVER CARD EXECUTION NOTE TRUST	254683BS3	07/15/2021	FIXED	1.640	12,000
ABS	DISCOVER CARD EXECUTION NOTE TRUST	254683BE4	04/15/2019	FIXED	1.040	45,451
ABS	DISCOVER CARD EXECUTION NOTE TRUST	254683BT1	09/15/2021	FLOAT	1.064	6,000
ABS	FORD CREDIT AUTO OWNER TRUST FORDO_13-B	34530EAD9	08/15/2018	FIXED	0.760	5,791
ABS	FORD CREDIT AUTO OWNER TRUST FORDO_13-D	34530GAD4	04/15/2018	FIXED	0.670	2,101
ABS	FORD CREDIT AUTO OWNER TRUST FORDO_15-A	34530QAB6	01/15/2018	FIXED	0.810	197
ABS	FORD CREDIT AUTO OWNER TRUST FORDO_15-A	34530QAD2	09/15/2019	FIXED	1.280	3,500
ABS	FORD CREDIT AUTO OWNER TRUST FORDO_15-B	34530VAD1	11/15/2019	FIXED	1.160	7,000
ABS	FORD CREDIT AUTO OWNER TRUST FORDO_15-B	34530VAC3	03/15/2018	FLOAT	0.754	8,403
ABS	FORD CREDIT AUTO OWNER TRUST FORDO_15-C	34530YAC7	08/15/2018	FLOAT	0.884	5,729
ABS	FORD CREDIT AUTO OWNER TRUST FORDO_16-A	34531PAC5	12/15/2018	FLOAT	0.924	5,449
ABS	FORD CREDIT AUTO OWNER TRUST FORDO_16-B	34532EAA3	05/15/2017	FIXED	0.630	5,490
ABS	FORD CREDIT AUTO OWNER TRUST FORDO_16-B	34532EAC9	03/15/2019	FLOAT	0.834	12,500
ABS	HONDA AUTO RECEIVABLES OWNER TRUST	438124AB5	10/18/2018	FIXED	1.010	21,000
ABS	HONDA AUTO RECEIVABLES OWNER TRUST HAROT_13-3	43812XAD7	09/16/2019	FIXED	1.130	7,858
ABS	HONDA AUTO RECEIVABLES OWNER TRUST HAROT_14-1	43813JAC9	11/21/2017	FIXED	0.670	2,909
ABS	HONDA AUTO RECEIVABLES OWNER TRUST HAROT_14-3	43814HAC2	06/15/2018	FIXED	0.880	5,594

ABS	HONDA AUTO RECEIVABLES OWNER TRUST HAROT_14-4	43814JAC8	09/17/2018	FIXED	0.990	18,529
ABS	HONDA AUTO RECEIVABLES OWNER TRUST HAROT_15-2	43813NAB2	08/21/2017	FIXED	0.690	2,635
ABS	HONDA AUTO RECEIVABLES OWNER TRUST HAROT_15-2	43813NAC0	02/21/2019	FIXED	1.040	14,750
ABS	HONDA AUTO RECEIVABLES OWNER TRUST HAROT_15-3	43814MAB3	11/20/2017	FIXED	0.920	9,648
ABS	HONDA AUTO RECEIVABLES OWNER TRUST HAROT_15-4	43814LAB5	07/23/2018	FIXED	0.820	15,995
ABS	HONDA AUTO RECEIVABLES OWNER TRUST HAROT_16-1	43814NAA3	02/21/2017	FIXED	0.620	1,773
ABS	HONDA AUTO RECEIVABLES OWNER TRUST HAROT_16-2	43814QAB4	09/15/2018	FIXED	1.130	12,000
ABS	HYUNDAI AUTO RECEIVABLES TRUST HART_15-B	44890YAC0	04/16/2018	FLOAT	0.744	2,129
ABS	HYUNDAI AUTO RECEIVABLES TRUST HART_15-C	44918LAC6	11/15/2018	FLOAT	0.894	4,515
ABS	HYUNDAI AUTO RECEIVABLES TRUST HART_16-A	44930UAB2	06/17/2019	FIXED	1.210	9,000
ABS	HYUNDAI AUTO RECEIVABLES TRUST HART_16-B	44891EAA7	09/15/2017	FIXED	0.700	14,000
ABS	HYUNDAI AUTO RECEIVABLES TRUST HART_16-B	44891EAB5	10/15/2019	FIXED	1.120	13,500
ABS	JOHN DEERE OWNER TRUST JDOT_15-A	47787UAD5	06/17/2019	FIXED	1.320	7,000
ABS	JOHN DEERE OWNER TRUST JDOT_15-A	47787UAC7	02/15/2018	FLOAT	0.794	1,938
ABS	JOHN DEERE OWNER TRUST JDOT_15-B	47787WAB5	06/15/2018	FIXED	0.980	6,214
ABS	JOHN DEERE OWNER TRUST JDOT_15-B	47787WAC3	10/15/2019	FIXED	1.440	3,250
ABS	JOHN DEERE OWNER TRUST JDOT_16-A	47788MAB6	10/15/2018	FIXED	1.150	9,500
ABS	JOHN DEERE OWNER TRUST JDOT_16-A	47788MAA8	03/15/2017	FIXED	0.640	3,537
ABS	JOHN DEERE OWNER TRUST JDOT_16-B	47788NAC2	06/15/2020	FIXED	1.250	3,500
ABS	JOHN DEERE OWNER TRUST JDOT_16-B	47788NAB4	02/15/2019	FIXED	1.090	10,000
ABS	NISSAN AUTO RECEIVABLES OWNER TRUST	65478WAB1	05/15/2019	FIXED	1.070	10,000
ABS	NISSAN AUTO RECEIVABLES OWNER TRUST	65478WAD7	01/15/2021	FIXED	1.180	6,000
ABS	NISSAN AUTO RECEIVABLES OWNER TRUST NAROT_13-A	654748AD4	07/15/2019	FIXED	0.750	4,548
ABS	NISSAN AUTO RECEIVABLES OWNER TRUST NAROT_13-B	65477LAC4	11/15/2017	FIXED	0.840	811
ABS	NISSAN AUTO RECEIVABLES OWNER TRUST NAROT_13-C	65477MAC2	08/15/2018	FIXED	0.670	8,504
ABS	NISSAN AUTO RECEIVABLES OWNER TRUST NAROT_14-A	65477PAC5	08/15/2018	FIXED	0.720	10,389
ABS	NISSAN AUTO RECEIVABLES OWNER TRUST NAROT_15-B	65475WAC2	07/16/2018	FLOAT	0.804	6,497
ABS	NISSAN AUTO RECEIVABLES OWNER TRUST NAROT_15-C	65478AAB9	11/15/2018	FIXED	0.870	11,262
ABS	NISSAN AUTO RECEIVABLES OWNER TRUST NAROT_16-A	65478UAB5	02/15/2019	FIXED	1.060	9,000
ABS	NISSAN AUTO RECEIVABLES OWNER TRUST NAROT_16-A	65478UAA7	02/15/2017	FIXED	0.640	318
ABS	NISSAN AUTO RECEIVABLES OWNER TRUST NAROT_16-B	65478VAA5	05/15/2017	FIXED	0.630	9,289
ABS	NISSAN AUTO RECEIVABLES OWNER TRUST NAROT_16-B	65478VAC1	04/15/2019	FLOAT	0.824	7,000
ABS	SYNCHRONY CREDIT CARD MASTER NOTE TRUST	87165LAX9	03/15/2022	FIXED	2.040	6,500
ABS	SYNCHRONY CREDIT CARD MASTER NOTE TRUST	36159JDH1	08/17/2020	FIXED	1.360	30,000
ABS	SYNCHRONY CREDIT CARD MASTER NOTE TRUST	36159JDQ1	03/15/2021	FIXED	1.350	15,000
ABS	SYNCHRONY CREDIT CARD MASTER NOTE TRUST	36159JCY5	03/15/2020	FLOAT	0.974	15,000
ABS	SYNCHRONY CREDIT CARD MASTER NOTE TRUST	87165LAP6	09/15/2021	FIXED	1.740	8,000

ABS	TOYOTA AUTO RECEIVABLES OWNER TRUST	89237WAB3	01/15/2019	FIXED	1.000	10,000
ABS	TOYOTA AUTO RECEIVABLES OWNER TRUST	89237WAD9	08/17/2020	FIXED	1.140	10,000
ABS	TOYOTA AUTO RECEIVABLES OWNER TRUST TAOT_14-A	89231MAC9	12/15/2017	FIXED	0.670	4,030
ABS	TOYOTA AUTO RECEIVABLES OWNER TRUST TAOT_14-B	89231RAC8	03/15/2018	FIXED	0.760	9,452
ABS	TOYOTA AUTO RECEIVABLES OWNER TRUST TAOT_14-C	89190AAC4	07/15/2018	FIXED	0.930	6,320
ABS	TOYOTA AUTO RECEIVABLES OWNER TRUST TAOT_15-A	89236WAB4	07/17/2017	FIXED	0.710	59
ABS	TOYOTA AUTO RECEIVABLES OWNER TRUST TAOT_15-A	89236WAC2	02/15/2019	FIXED	1.120	32,500
ABS	TOYOTA AUTO RECEIVABLES OWNER TRUST TAOT_15-C	89231TAD2	06/15/2019	FIXED	1.340	25,000
ABS	TOYOTA AUTO RECEIVABLES OWNER TRUST TAOT_16-B	89231UAB3	10/15/2018	FIXED	1.020	10,000
AGENCY	FEDERAL FARM CREDIT BANKS FUNDING CORP	3133EFCB1	09/04/2018	FLOAT	0.801	25,000
AGENCY	FEDERAL FARM CREDIT BANKS FUNDING CORP	3133EFCT2	06/08/2018	FLOAT	0.572	25,000
AGENCY	FEDERAL FARM CREDIT BANKS FUNDING CORP	3133EGVA0	09/23/2019	FLOAT	0.853	25,000
AGENCY	FEDERAL FARM CREDIT BANKS FUNDING CORP	3133EFGC5	10/01/2018	FLOAT	0.646	50,000
AGENCY	FEDERAL FARM CREDIT BANKS FUNDING CORP	313313AN8	01/13/2017	ZERO		4,715
AGENCY	FEDERAL FARM CREDIT BANKS FUNDING CORP	3133EDXA5	10/10/2017	FIXED	1.150	40,000
AGENCY	FEDERAL FARM CREDIT BANKS FUNDING CORP	3133EFPB7	11/16/2018	FLOAT	0.858	75,000
AGENCY	FEDERAL FARM CREDIT BANKS FUNDING CORP	3133EFE52	02/25/2019	FLOAT	0.795	25,000
AGENCY	FEDERAL FARM CREDIT BANKS FUNDING CORP	3133EGNW1	07/26/2019	FLOAT	0.715	25,000
AGENCY	FEDERAL FARM CREDIT BANKS FUNDING CORP	3133EDVP4	03/22/2017	FLOAT	0.490	15,000
AGENCY	FEDERAL FARM CREDIT BANKS FUNDING CORP	3133EFHT7	04/09/2018	FLOAT	0.635	25,000
AGENCY	FEDERAL FARM CREDIT BANKS FUNDING CORP	3133EEZC7	04/16/2018	FLOAT	0.580	25,000
AGENCY	FEDERAL HOME LOAN BANKS	313384J59	10/05/2016	ZERO		42,049
AGENCY	FEDERAL HOME LOAN BANKS	313384L56	10/21/2016	ZERO		25,000
AGENCY	FEDERAL HOME LOAN BANKS	313384K65	10/14/2016	ZERO		35,000
AGENCY	FEDERAL HOME LOAN BANKS	313384L31	10/19/2016	ZERO		10,000
AGENCY	FEDERAL HOME LOAN BANKS	3130A6YJ0	01/06/2017	FLOAT	0.613	20,000
AGENCY	FEDERAL HOME LOAN BANKS	313384K32	10/11/2016	ZERO		7,600
AGENCY	FEDERAL HOME LOAN BANKS	313384L23	10/18/2016	ZERO		10,000
AGENCY	FEDERAL HOME LOAN BANKS	313384L80	10/24/2016	ZERO		15,000
AGENCY	FEDERAL HOME LOAN BANKS	313384J42	10/04/2016	ZERO		16,500
AGENCY	FEDERAL HOME LOAN BANKS	313384M89	11/01/2016	ZERO		15,000
AGENCY	FEDERAL HOME LOAN BANKS	313384J34	10/03/2016	ZERO		75,000
AGENCY	FEDERAL HOME LOAN BANKS	313384J75	10/07/2016	ZERO		18,300
AGENCY	FEDERAL HOME LOAN MORTGAGE CORPORATION	3137EADC0	03/08/2017	FIXED	1.000	10,000
AGENCY	FEDERAL HOME LOAN MORTGAGE CORPORATION	313396J79	10/07/2016	ZERO		25,000
AGENCY	FEDERAL NATIONAL MORTGAGE ASSOCIATION	313588J30	10/03/2016	ZERO		42,000
AGENCY	FEDERAL NATIONAL MORTGAGE ASSOCIATION	3135G0TG8	02/08/2018	FIXED	0.875	20,000

AGENCY	FEDERAL NATIONAL MORTGAGE ASSOCIATION	3136G2GU5	04/30/2018	FIXED	1.125	20,000
AGENCY	FEDERAL NATIONAL MORTGAGE ASSOCIATION	3135G0ZV8	10/17/2017	FIXED	2.000	10,000
AGENCY	FEDERAL NATIONAL MORTGAGE ASSOCIATION	3135G0PQ0	10/26/2017	FIXED	0.875	75,000
CD	BANK OF AMERICA NA	06052TSY7	11/01/2016	MAT	0.850	30,000
CD	CHASE BANK USA NA	16144RVP5	06/01/2017	MAT	1.150	25,000
CD	CHASE BANK USA NA	161453BN4	06/30/2017	FLOAT	1.054	50,000
CD	CHASE BANK USA NA	161453BG9	11/01/2016	FLOAT	0.873	50,000
CD	WELLS FARGO BANK NA	94988EKG2	10/13/2016	FLOAT	0.929	52,850
CD	WELLS FARGO BANK NA	94988EZ50	09/22/2017	FLOAT	1.343	10,000
CD	WELLS FARGO BANK NA	94988EY77	06/30/2017	MAT	1.230	35,000
CD	WELLS FARGO BANK NA	94988ELA4	10/27/2016	FLOAT	0.874	50,000
CD	WELLS FARGO BANK NA	94988EKN7	10/12/2016	FLOAT	0.880	25,000
CD	WELLS FARGO BANK NA	94988EUN6	04/28/2017	MAT	1.200	20,000
CD	WELLS FARGO BANK NA	94988EN38	01/03/2017	FLOAT	0.969	35,000
CD	WELLS FARGO BANK NA	94988ETX6	04/13/2017	FLOAT	1.080	50,000
CD	WELLS FARGO BANK NA	94988ELT3	12/01/2016	FLOAT	0.820	40,000
CD	WELLS FARGO BANK NA	94988ER42	02/01/2017	FLOAT	1.041	25,000
CORP	AMERICAN EXPRESS BANK FSB	02580ECC5	09/13/2017	FIXED	6.000	16,205
CORP	AMERICAN EXPRESS BANK FSB	02580EBY8	06/12/2017	FLOAT	0.818	3,250
CORP	AMERICAN EXPRESS CREDIT CORPORATION	0258M0DD8	03/24/2017	FIXED	2.375	10,000
CORP	AMERICAN EXPRESS CREDIT CORPORATION	0258M0DV8	07/31/2018	FIXED	1.800	12,000
CORP	AMERICAN EXPRESS CREDIT CORPORATION	0258M0DM8	06/05/2017	FIXED	1.125	10,000
CORP	AMERICAN EXPRESS CREDIT CORPORATION	0258M0DS5	09/22/2017	FLOAT	1.166	40,195
CORP	AMERICAN EXPRESS CREDIT CORPORATION	0258M0DW6	07/31/2018	FLOAT	1.362	45,123
CORP	AMERICAN EXPRESS CREDIT CORPORATION	0258M0DN6	06/05/2017	FLOAT	1.105	25,000
CORP	AMERICAN EXPRESS CREDIT CORPORATION	0258M0EA3	11/05/2018	FLOAT	1.558	25,000
CORP	AMERICAN EXPRESS CREDIT CORPORATION	0258M0DZ9	11/05/2018	FIXED	1.875	7,000
CORP	AMERICAN EXPRESS CREDIT CORPORATION	0258M0DR7	09/22/2017	FIXED	1.550	3,000
CORP	AMERICAN HONDA FINANCE CORPORATION	02665WAW1	07/13/2018	FIXED	1.600	7,000
CORP	AMERICAN HONDA FINANCE CORPORATION	02665WAX9	07/13/2018	FLOAT	1.129	34,285
CORP	AMERICAN HONDA FINANCE CORPORATION	02665WAG6	07/14/2017	FLOAT	0.843	25,500
CORP	AMERICAN HONDA FINANCE CORPORATION	02665WAF8	07/14/2017	FIXED	1.200	18,500
CORP	AMERICAN HONDA FINANCE CORPORATION	02665WBB6	02/22/2019	FLOAT	1.636	20,000
CORP	AMERICAN HONDA FINANCE CORPORATION	02665WAV3	05/05/2017	FIXED	0.950	18,000
CORP	AMERICAN HONDA FINANCE CORPORATION	02665WAR2	12/11/2017	FLOAT	1.155	45,755
CORP	AMERICAN HONDA FINANCE CORPORATION	02665WAY7	09/20/2017	FLOAT	1.307	35,000
CORP	AMERICAN HONDA FINANCE CORPORATION	02665WBE0	07/12/2019	FIXED	1.200	29,361

CORP	ANHEUSER-BUSCH INBEV FINANCE INC	035242AG1	02/01/2019	FIXED	1.900	50,000
CORP	ANHEUSER-BUSCH INBEV FINANCE INC	03524BAD8	01/27/2017	FLOAT	0.924	24,363
CORP	ANHEUSER-BUSCH INBEV FINANCE INC	03524BAC0	01/27/2017	FIXED	1.125	10,000
CORP	ANHEUSER-BUSCH INBEV WORLDWIDE INC	03523TBN7	07/15/2017	FIXED	1.375	11,895
CORP	APPLE INC	037833AG5	05/03/2018	FLOAT	1.009	49,031
CORP	APPLE INC	037833BR0	02/22/2019	FLOAT	1.637	25,000
CORP	ASTRAZENECA PLC	046353AJ7	11/16/2018	FLOAT	1.348	71,000
CORP	AUSTRALIA AND NEW ZEALAND BANKING GROUP LTD (NEW YORK BRANCH)	05253JAJ0	11/16/2018	FIXED	2.000	15,000
CORP	AUSTRALIA AND NEW ZEALAND BANKING GROUP LTD (NEW YORK BRANCH)	05253JAN1	07/15/2019	FIXED	1.600	15,000
CORP	AUSTRALIA AND NEW ZEALAND BANKING GROUP LTD (NEW YORK BRANCH)	05253JAF8	06/13/2017	FIXED	1.250	34,525
CORP	BANK OF AMERICA CORP	06051GFR5	05/12/2018	FIXED	1.950	15,000
CORP	BANK OF AMERICA CORP	06051GFJ3	08/25/2017	FIXED	1.700	15,000
CORP	BANK OF AMERICA CORP	06051GET2	01/11/2018	FIXED	2.000	11,652
CORP	BANK OF AMERICA CORP	06051GFK0	08/25/2017	FLOAT	1.435	33,500
CORP	BANK OF AMERICA CORP	06051GEZ8	11/21/2016	FIXED	1.350	20,000
CORP	BANK OF AMERICA NA	06050TLY6	03/26/2018	FIXED	1.650	28,731
CORP	BANK OF AMERICA NA	06050TME9	12/07/2018	FIXED	2.050	13,990
CORP	BANK OF AMERICA NA	06050TLS9	11/14/2016	FLOAT	1.287	20,000
CORP	BANK OF AMERICA NA	06050TLT7	02/14/2017	FIXED	1.250	10,000
CORP	BANK OF AMERICA NA	06050TLX8	05/08/2017	FLOAT	1.208	30,257
CORP	BANK OF AMERICA NA	06050TMF6	12/07/2018	FLOAT	1.593	75,000
CORP	BANK OF AMERICA NA	06050TLU4	02/14/2017	FLOAT	1.287	40,000
CORP	BANK OF AMERICA NA	06050TKW1	06/15/2017	FIXED	6.100	4,175
CORP	BANK OF AMERICA NA	06050TKX9	06/15/2017	FLOAT	1.150	10,205
CORP	BANK OF AMERICA NA	06050TLR1	11/14/2016	FIXED	1.125	25,000
CORP	BANK OF MONTREAL	06366RE84	04/10/2018	FLOAT	1.025	5,000
CORP	BANK OF MONTREAL	06366RE76	04/10/2018	FIXED	1.400	10,000
CORP	BANK OF MONTREAL	06366RU78	07/31/2018	FIXED	1.800	7,000
CORP	BANK OF MONTREAL	06367THQ6	07/18/2019	FIXED	1.500	15,000
CORP	BANK OF MONTREAL	06366RU86	07/31/2018	FLOAT	1.362	20,000
CORP	BANK OF MONTREAL	06367THR4	07/18/2019	FLOAT	1.329	30,000
CORP	BANK OF NEW YORK MELLON CORP/THE	06406HDC0	05/22/2018	FLOAT	1.191	24,750
CORP	BANK OF NOVA SCOTIA	064159GN0	06/11/2018	FLOAT	1.315	25,000
CORP	BANK OF NOVA SCOTIA	064159GM2	06/11/2018	FIXED	1.700	10,000
CORP	BANK OF NOVA SCOTIA	064159HU3	06/14/2019	FLOAT	1.516	25,000
CORP	BANK OF NOVA SCOTIA	064159ED4	03/22/2017	FLOAT	1.403	50,000
CORP	BANK OF NOVA SCOTIA	064159HD1	01/15/2019	FLOAT	1.510	65,000

CORP	BANK OF NOVA SCOTIA	064159EK8	04/11/2017	FIXED	1.250	5,000
CORP	BANK OF NOVA SCOTIA	064159FK7	07/21/2017	FIXED	1.300	25,000
CORP	BANK OF NOVA SCOTIA	064159HT6	06/14/2019	FIXED	1.650	15,000
CORP	BARCLAYS BANK PLC	06739FHU8	02/17/2017	FLOAT	1.384	3,790
CORP	BARCLAYS BANK PLC	06741UCH5	04/13/2017	FLOAT	1.079	25,000
CORP	BARCLAYS BANK PLC	06741TX69	11/18/2016	FLOAT	1.301	50,000
CORP	BARCLAYS BANK PLC	06741T2K2	12/09/2016	FLOAT	1.374	8,680
CORP	BARCLAYS BANK PLC	06741T2D8	11/27/2016	FLOAT	1.409	50,000
CORP	BERKSHIRE HATHAWAY FINANCE CORP	084664CE9	03/07/2018	FIXED	1.450	15,000
CORP	BERKSHIRE HATHAWAY FINANCE CORP	084664CF6	03/07/2018	FLOAT	1.383	32,000
CORP	BERKSHIRE HATHAWAY FINANCE CORP	084664CA7	01/10/2017	FLOAT	0.815	10,000
CORP	BERKSHIRE HATHAWAY FINANCE CORP	084664CH2	03/15/2019	FLOAT	1.540	15,000
CORP	BERKSHIRE HATHAWAY FINANCE CORP	084664CD1	01/12/2018	FLOAT	0.967	16,194
CORP	BERKSHIRE HATHAWAY FINANCE CORP	084664CL3	08/15/2019	FLOAT	1.077	15,000
CORP	BERKSHIRE HATHAWAY FINANCE CORP	084664CK5	08/15/2019	FIXED	1.300	17,000
CORP	BERKSHIRE HATHAWAY INC	084670BD9	01/31/2017	FIXED	1.900	3,000
CORP	BLACKROCK INC	09247XAC5	09/15/2017	FIXED	6.250	13,666
CORP	BNP PARIBAS SA	05574LTW8	12/12/2016	FIXED	1.250	20,000
CORP	BNP PARIBAS SA	05574LTV0	12/12/2016	FLOAT	1.435	20,000
CORP	BNP PARIBAS SA	05574LXF0	03/17/2017	FLOAT	1.337	20,000
CORP	BNP PARIBAS SA	05574LXG8	03/17/2017	FIXED	1.375	10,000
CORP	BNP PARIBAS SA	05574LZP6	05/07/2017	FLOAT	1.248	17,700
CORP	BP CAPITAL MARKETS PLC	05565QCV8	02/10/2017	FLOAT	1.157	25,000
CORP	BP CAPITAL MARKETS PLC	05565QCW6	02/13/2018	FLOAT	1.242	20,000
CORP	BP CAPITAL MARKETS PLC	05565QCN6	11/07/2016	FLOAT	1.208	15,000
CORP	BP CAPITAL MARKETS PLC	05565QCY2	02/13/2018	FIXED	1.674	7,500
CORP	BPCE SA	05578DAM4	06/23/2017	FLOAT	1.473	30,000
CORP	CANADA (GOVERNMENT OF)	716442AA6	12/15/2016	FIXED	8.250	5,000
CORP	CAPITAL ONE NA	14042E4K3	02/05/2018	FLOAT	1.458	10,000
CORP	CAPITAL ONE NA	14042E3Z1	09/05/2017	FIXED	1.500	10,000
CORP	CATERPILLAR FINANCIAL SERVICES CORPORATION	14912L6L0	06/16/2018	FIXED	1.700	10,000
CORP	CATERPILLAR FINANCIAL SERVICES CORPORATION	14912L6Q9	02/23/2018	FLOAT	1.517	45,000
CORP	CATERPILLAR FINANCIAL SERVICES CORPORATION	14912L6S5	11/20/2017	FLOAT	1.061	24,000
CORP	CATERPILLAR FINANCIAL SERVICES CORPORATION	14912L6D8	08/18/2017	FIXED	1.250	10,000
CORP	CATERPILLAR FINANCIAL SERVICES CORPORATION	14912L5Y3	03/03/2017	FLOAT	1.065	20,000
CORP	CHEVRON CORP	166764AW0	03/02/2018	FLOAT	1.009	26,120
CORP	CHEVRON CORP	166764AK6	11/15/2017	FLOAT	0.987	10,000

CORP	CISCO SYSTEMS INC	17275RBK7	09/20/2019	FLOAT	1.197	40,000
CORP	CISCO SYSTEMS INC	17275RAZ5	02/21/2018	FLOAT	1.411	50,000
CORP	CISCO SYSTEMS INC	17275RAS1	03/03/2017	FLOAT	1.115	20,000
CORP	CISCO SYSTEMS INC	17275RAU6	06/15/2018	FIXED	1.650	5,000
CORP	CISCO SYSTEMS INC	17275RAY8	06/15/2018	FLOAT	1.160	31,050
CORP	CITIGROUP INC	172967JQ5	04/27/2018	FLOAT	1.424	25,000
CORP	CITIGROUP INC	172967JD4	11/24/2017	FLOAT	1.525	10,000
CORP	CITIGROUP INC	172967JE2	11/24/2017	FIXED	1.850	20,000
CORP	CITIGROUP INC	172967JV4	07/30/2018	FLOAT	1.632	35,000
CORP	CITIGROUP INC	172967JN2	04/27/2018	FIXED	1.700	20,000
CORP	CITIGROUP INC	172967HY0	08/14/2017	FIXED	1.550	20,000
CORP	COMMONWEALTH BANK OF AUSTRALIA (NEW YORK BRANCH)	20271RAC4	09/18/2017	FIXED	1.900	20,570
CORP	COMMONWEALTH BANK OF AUSTRALIA (NEW YORK BRANCH)	20271RAN0	03/15/2019	FIXED	2.050	20,000
CORP	COMMONWEALTH BANK OF AUSTRALIA (NEW YORK BRANCH)	20271RAJ9	03/12/2018	FIXED	1.625	19,000
CORP	CREDIT SUISSE AG (NEW YORK BRANCH)	22546QAV9	04/27/2018	FIXED	1.700	20,000
CORP	CREDIT SUISSE AG (NEW YORK BRANCH)	22546QAM9	05/26/2017	FLOAT	1.315	36,475
CORP	CREDIT SUISSE AG (NEW YORK BRANCH)	22546QAW7	04/27/2018	FLOAT	1.414	10,000
CORP	CREDIT SUISSE AG (NEW YORK BRANCH)	2254M0H58	08/17/2017	FLOAT	2.014	25,000
CORP	CREDIT SUISSE AG (NEW YORK BRANCH)	22546QAU1	01/29/2018	FLOAT	1.442	30,000
CORP	CREDIT SUISSE AG (NEW YORK BRANCH)	22546QAL1	05/26/2017	FIXED	1.375	11,625
CORP	DEUTSCHE BANK AG (LONDON BRANCH)	25152RVQ3	02/13/2017	FLOAT	1.427	50,000
CORP	DUKE ENERGY PROGRESS LLC	26442RAA9	03/06/2017	FLOAT	1.035	7,000
CORP	DUKE ENERGY PROGRESS LLC	26442RAC5	11/20/2017	FLOAT	1.011	10,000
CORP	EXPORT DEVELOPMENT CANADA	30216BFZ0	02/04/2019	FIXED	1.250	7,500
CORP	EXPORT DEVELOPMENT CANADA	30216BER9	01/30/2017	FIXED	0.875	14,730
CORP	EXPORT-IMPORT BANK OF KOREA	302154BL2	01/14/2017	FLOAT	1.423	12,000
CORP	EXPORT-IMPORT BANK OF KOREA	302154AY5	10/20/2016	FIXED	3.750	20,000
CORP	FIFTH THIRD BANK (OHIO)	31677QBJ7	09/27/2019	FLOAT	1.443	15,000
CORP	FIFTH THIRD BANK (OHIO)	31677QBH1	09/27/2019	FIXED	1.625	5,000
CORP	FIFTH THIRD BANK (OHIO)	31677QBE8	08/20/2018	FLOAT	1.721	40,000
CORP	GENERAL ELECTRIC CAPITAL CORP	36962G6X7	04/02/2018	FLOAT	1.363	48,615
CORP	GENERAL ELECTRIC CAPITAL CORP	36962GX66	08/07/2018	FLOAT	1.058	11,158
CORP	GENERAL ELECTRIC CAPITAL CORP	36967FAB7	01/09/2017	FLOAT	0.945	20,000
CORP	GENERAL ELECTRIC CAPITAL CORP	36962G7H1	05/15/2017	FLOAT	1.097	75,063
CORP	GENERAL ELECTRIC CO	BRS4Y1AM3	03/20/2017	FLOAT	1.027	5,700
CORP	GOLDMAN SACHS GROUP INC/THE	38141EB99	06/04/2017	FLOAT	1.460	40,000
CORP	GOLDMAN SACHS GROUP INC/THE	38141EC49	12/15/2017	FLOAT	1.650	75,000

CORP	GOLDMAN SACHS GROUP INC/THE	38141GER1	10/01/2016	FIXED	5.750	56,635
CORP	GOLDMAN SACHS GROUP INC/THE	38141GVK7	04/30/2018	FLOAT	1.952	74,866
CORP	GOLDMAN SACHS GROUP INC/THE	38148LAD8	05/22/2017	FLOAT	1.481	5,000
CORP	GOLDMAN SACHS GROUP INC/THE	38141GRC0	01/22/2018	FIXED	2.375	11,000
CORP	GOLDMAN SACHS GROUP INC/THE	38141EB73	11/15/2018	FLOAT	1.917	47,065
CORP	HSBC USA INC	40428HPU0	08/07/2018	FIXED	2.000	9,000
CORP	HSBC USA INC	4042K1LH4	07/27/2017	FLOAT	1.884	20,000
CORP	HSBC USA INC	40434CAB1	06/23/2017	FLOAT	1.163	15,000
CORP	HSBC USA INC	40428HPM8	11/13/2017	FLOAT	1.157	40,000
CORP	INTERNATIONAL BUSINESS MACHINES CORP	459200JD4	08/18/2017	FLOAT	1.251	60,000
CORP	INTERNATIONAL BUSINESS MACHINES CORP	459200HW4	02/12/2019	FLOAT	1.188	12,000
CORP	INTERNATIONAL BUSINESS MACHINES CORP	459200JA0	02/06/2018	FLOAT	0.978	70,655
CORP	JOHN DEERE CAPITAL CORP	24422ETA7	08/10/2018	FIXED	1.750	5,000
CORP	JOHN DEERE CAPITAL CORP	24422ESX8	07/13/2018	FIXED	1.600	10,000
CORP	JOHN DEERE CAPITAL CORP	24422ETE9	01/08/2019	FIXED	1.950	10,000
CORP	JOHN DEERE CAPITAL CORP	24422ESZ3	07/11/2017	FLOAT	1.115	19,000
CORP	JOHN DEERE CAPITAL CORP	24422ESQ3	12/15/2017	FLOAT	1.070	34,700
CORP	JOHN DEERE CAPITAL CORP	24422ETD1	01/08/2019	FLOAT	1.231	50,000
CORP	JPMORGAN CHASE & CO	48125XC46	08/10/2017	FLOAT	1.907	25,000
CORP	JPMORGAN CHASE & CO	46625HJV5	03/22/2019	FLOAT	1.706	30,000
CORP	JPMORGAN CHASE & CO	46625HQU7	03/22/2019	FIXED	1.850	20,000
CORP	JPMORGAN CHASE & CO	46625HJS0	01/28/2019	FLOAT	1.373	5,000
CORP	JPMORGAN CHASE & CO	46623EKE8	03/01/2018	FLOAT	1.352	2,225
CORP	JPMORGAN CHASE & CO	46623EKA6	04/25/2018	FLOAT	1.265	62,005
CORP	JPMORGAN CHASE & CO	46625HJG6	01/25/2018	FIXED	1.800	5,070
CORP	JPMORGAN CHASE & CO	46623EKD0	03/01/2018	FIXED	1.700	23,495
CORP	JPMORGAN CHASE & CO	46625HJF8	01/25/2018	FLOAT	1.615	53,294
CORP	JPMORGAN CHASE BANK NA	48125LRH7	09/21/2018	FLOAT	1.313	50,000
CORP	JPMORGAN CHASE BANK NA	48121CYK6	10/01/2017	FIXED	6.000	14,238
CORP	JPMORGAN CHASE BANK NA	48125LRJ3	09/23/2019	FLOAT	1.453	50,000
CORP	JPMORGAN CHASE BANK NA	48125LRC8	06/02/2017	FLOAT	1.259	87,250
CORP	JPMORGAN CHASE BANK NA	48125LRD6	06/14/2017	FLOAT	1.256	28,000
CORP	KEYBANK NATIONAL ASSOCIATION	49327M2H6	06/01/2018	FIXED	1.700	5,000
CORP	KEYBANK NATIONAL ASSOCIATION	49327M2L7	06/01/2018	FLOAT	1.362	10,000
CORP	KFW	500769GW8	12/29/2017	FLOAT	1.014	40,000
CORP	KFW	500769GY4	04/19/2018	FIXED	0.875	22,500
CORP	KFW	500769BY9	01/17/2017	FIXED	4.875	10,000

CORP	KFW	500769ES9	10/05/2016	FIXED	1.250	10,000
CORP	LLOYDS BANK PLC	53944VAC3	03/16/2018	FIXED	1.750	14,450
CORP	LLOYDS BANK PLC	53944VAN9	01/22/2019	FLOAT	1.702	14,750
CORP	MICROSOFT CORPORATION	594918BN3	08/08/2019	FIXED	1.100	35,000
CORP	MONSANTO COMPANY	61166WAL5	11/07/2016	FLOAT	0.988	12,000
CORP	MORGAN STANLEY	61761JVN6	01/05/2018	FLOAT	1.393	55,000
CORP	MORGAN STANLEY	61761JVM8	01/05/2018	FIXED	1.875	34,907
CORP	MORGAN STANLEY	61745E3L3	07/22/2017	FLOAT	2.702	20,000
CORP	MORGAN STANLEY	61746BDX1	02/01/2019	FIXED	2.450	10,000
CORP	MORGAN STANLEY	61746BDY9	02/01/2019	FLOAT	2.132	50,000
CORP	MORGAN STANLEY	617446V71	08/28/2017	FIXED	6.250	9,945
CORP	MORGAN STANLEY	61746BDC7	10/18/2016	FLOAT	1.129	69,500
CORP	MORGAN STANLEY	6174467V5	04/25/2018	FLOAT	1.995	60,000
CORP	NATIONAL AUSTRALIA BANK LTD (NEW YORK BRANCH)	63254AAM0	01/14/2019	FIXED	2.000	30,000
CORP	NATIONAL AUSTRALIA BANK LTD (NEW YORK BRANCH)	63254AAK4	07/23/2018	FIXED	1.875	7,000
CORP	NATIONAL BANK OF CANADA	63307A2C8	12/14/2018	FIXED	2.100	15,000
CORP	NATIONAL BANK OF CANADA	63307A2B0	12/14/2018	FLOAT	1.696	40,000
CORP	NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORP	63743HEM0	04/24/2017	FIXED	0.950	6,000
CORP	NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORP	63743HEK4	05/12/2017	FLOAT	1.068	15,000
CORP	NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORP	637432NH4	02/08/2019	FIXED	1.650	7,000
CORP	NATIONAL RURAL UTILITIES COOPERATIVE FINANCE CORP	63743HEH1	11/23/2016	FLOAT	1.117	10,000
CORP	ONTARIO (PROVINCE OF)	68323ADK7	01/18/2019	FIXED	1.625	40,000
CORP	ORACLE CORPORATION	68389XAT2	07/07/2017	FLOAT	0.857	35,000
CORP	PACCAR FINANCIAL CORP	69371RM86	02/25/2019	FIXED	1.650	7,000
CORP	PACCAR FINANCIAL CORP	69371RM60	08/14/2018	FIXED	1.750	25,000
CORP	PACCAR FINANCIAL CORP	69371RN28	05/10/2019	FIXED	1.300	25,000
CORP	PACCAR FINANCIAL CORP	69371RL95	06/06/2017	FLOAT	1.025	15,295
CORP	PACCAR FINANCIAL CORP	69371RM45	03/09/2018	FIXED	1.450	10,000
CORP	PEPSICO INC	713448DA3	10/13/2017	FLOAT	1.019	42,500
CORP	PEPSICO INC	713448CU0	04/30/2018	FLOAT	0.922	12,400
CORP	PEPSICO INC	713448DG0	02/22/2019	FLOAT	1.401	40,000
CORP	PEPSICO INC	713448CV8	07/17/2017	FLOAT	0.929	28,705
CORP	PHILIP MORRIS INTERNATIONAL INC	718172BN8	11/09/2017	FIXED	1.250	15,000
CORP	PNC BANK NATIONAL ASSOCIATION	69349LAP3	11/01/2016	FIXED	1.150	5,000
CORP	PRECISION CASTPARTS CORP	740189AK1	01/15/2018	FIXED	1.250	11,715
CORP	QUALCOMM INCORPORATED	747525AH6	05/18/2018	FLOAT	1.081	13,000
CORP	QUEBEC (PROVINCE OF)	748149AL5	07/21/2019	FLOAT	0.977	50,000

CORP	ROYAL BANK OF CANADA	78012KFU6	07/31/2018	FIXED	1.800	10,000
CORP	ROYAL BANK OF CANADA	78010U4A2	10/13/2017	FIXED	1.400	10,000
CORP	ROYAL BANK OF CANADA	78012KJZ1	12/10/2018	FIXED	2.000	10,000
CORP	ROYAL BANK OF CANADA	78012KPY7	06/07/2018	FIXED	1.500	15,000
CORP	ROYAL BANK OF CANADA	78012KKA4	12/10/2018	FLOAT	1.545	65,000
CORP	ROYAL BANK OF CANADA	78012KNM5	04/15/2019	FLOAT	1.390	25,000
CORP	ROYAL BANK OF CANADA	78012KFV4	07/30/2018	FLOAT	1.292	25,000
CORP	SANTANDER UK PLC	80283LAG8	08/24/2018	FLOAT	1.675	25,000
CORP	SANTANDER UK PLC	80283LAB9	03/13/2017	FIXED	1.375	10,000
CORP	SANTANDER UK PLC	80283LAL7	03/14/2019	FLOAT	2.336	15,000
CORP	STATOIL ASA	85771PAU6	11/09/2017	FLOAT	0.992	25,000
CORP	STATOIL ASA	85771PAT9	11/09/2017	FIXED	1.250	20,000
CORP	SUMITOMO MITSUI BANKING CORPORATION	865622BK9	07/11/2017	FLOAT	0.985	9,000
CORP	SUMITOMO MITSUI BANKING CORPORATION	865622BL7	07/11/2017	FIXED	1.350	7,000
CORP	SWEDISH EXPORT CREDIT CORP	00254EMK5	04/12/2019	FIXED	1.250	20,000
CORP	SWEDISH EXPORT CREDIT CORP	00254EBZ4	03/01/2017	FIXED	5.125	14,000
CORP	SWEDISH EXPORT CREDIT CORP	00254EMH2	01/14/2019	FLOAT	1.003	25,000
CORP	TORONTO-DOMINION BANK/THE	89114QB23	03/13/2018	FLOAT	1.152	13,535
CORP	TORONTO-DOMINION BANK/THE	89114QAE8	10/19/2016	FIXED	2.375	7,925
CORP	TORONTO-DOMINION BANK/THE	89114QB72	07/23/2018	FLOAT	1.255	40,250
CORP	TORONTO-DOMINION BANK/THE	89114QBF4	01/22/2019	FLOAT	1.542	79,728
CORP	TOYOTA MOTOR CREDIT CORP	89236TCB9	01/12/2018	FLOAT	0.987	23,340
CORP	TOYOTA MOTOR CREDIT CORP	89236TCV5	02/19/2019	FLOAT	1.631	65,000
CORP	TOYOTA MOTOR CREDIT CORP	89236TCY9	04/06/2018	FLOAT	1.036	30,000
CORP	TOYOTA MOTOR CREDIT CORP	89236TCA1	01/12/2018	FIXED	1.450	5,000
CORP	TOYOTA MOTOR CREDIT CORP	89236TCR4	07/13/2018	FLOAT	1.129	52,711
CORP	TOYOTA MOTOR CREDIT CORP	89236TCP8	07/13/2018	FIXED	1.550	7,000
CORP	TOYOTA MOTOR CREDIT CORP	89236TCX1	04/06/2018	FIXED	1.200	30,000
CORP	UBS AG (STAMFORD BRANCH)	90261XHL9	06/01/2017	FIXED	1.375	24,631
CORP	UBS AG (STAMFORD BRANCH)	90261XHM7	06/01/2017	FLOAT	1.402	35,000
CORP	UBS AG (STAMFORD BRANCH)	90261XHH8	03/26/2018	FIXED	1.800	15,000
CORP	UBS AG (STAMFORD BRANCH)	90261XHJ4	03/26/2018	FLOAT	1.557	30,000
CORP	US BANK NATIONAL ASSOCIATION	90331HMX8	08/23/2017	FLOAT	1.267	25,000
CORP	US BANK NATIONAL ASSOCIATION	90331HMU4	01/29/2018	FIXED	1.450	15,000
CORP	US BANK NATIONAL ASSOCIATION	90331HMD2	01/30/2017	FLOAT	0.982	30,000
CORP	WACHOVIA CORPORATION	929903CJ9	10/15/2016	FLOAT	1.050	31,120
CORP	WACHOVIA CORPORATION	92976WBH8	02/01/2018	FIXED	5.750	22,500

CORP	WALT DISNEY CO	25468PDG8	01/08/2019	FLOAT	0.981	35,000
CORP	WELLS FARGO & COMPANY	94974BGD6	09/14/2018	FLOAT	1.256	37,170
CORP	WELLS FARGO & COMPANY	94974BFK1	04/23/2018	FLOAT	1.345	73,802
CORP	WELLS FARGO & COMPANY	929903DU3	06/15/2017	FLOAT	1.120	53,181
CORP	WELLS FARGO & COMPANY	94974BFX3	06/02/2017	FLOAT	1.139	40,000
CORP	WELLS FARGO & COMPANY	94974BFG0	01/16/2018	FIXED	1.500	10,000
CORP	WELLS FARGO & COMPANY	94974BFV7	04/22/2019	FLOAT	1.162	5,005
CORP	WELLS FARGO BANK NA	94988J5B9	01/22/2018	FLOAT	1.442	50,000
CORP	WELLS FARGO BANK NA	94988J5A1	01/22/2018	FIXED	1.650	10,000
CORP	WELLS FARGO BANK NA	94988J5C7	09/07/2017	FLOAT	1.383	35,000
CORP	WELLS FARGO BANK NA	94988J2L0	06/15/2017	FLOAT	1.110	40,000
CORP	WELLS FARGO BANK NA	94988J5E3	05/24/2019	FLOAT	1.425	20,000
CORP	WESTPAC BANKING CORP	961214CU5	05/13/2019	FLOAT	1.527	10,000
CORP	WESTPAC BANKING CORP	961214CL5	12/01/2017	FLOAT	1.212	31,000
CORP	WESTPAC BANKING CORP	961214CR2	11/23/2018	FLOAT	1.557	50,000
CORP	WESTPAC BANKING CORP	961214CN1	05/25/2018	FLOAT	1.255	17,500
CORP	WESTPAC BANKING CORP	961214CJ0	05/19/2017	FLOAT	1.141	20,000
CORP	WESTPAC BANKING CORP	961214CQ4	11/23/2018	FIXED	1.950	15,000
CORP	WESTPAC BANKING CORP	961214CK7	12/01/2017	FIXED	1.500	10,000
CP	AMERICAN EXPRESS CREDIT CORPORATION	02581RM18	12/01/2016	ZERO		25,000
CP	BANK OF MONTREAL	06367JNX6	01/31/2017	ZERO		10,000
CP	BANK OF MONTREAL	06367JS11	05/01/2017	ZERO		25,000
CP	BANK OF MONTREAL (CHICAGO BRANCH)	06366GS18	05/01/2017	ZERO		20,000
CP	BANK OF MONTREAL (CHICAGO BRANCH)	06366GQX0	03/31/2017	ZERO		15,000
CP	BNP PARIBAS SA (NEW YORK BRANCH)	09659BM15	12/01/2016	ZERO		20,000
CP	BNP PARIBAS SA (NEW YORK BRANCH)	09659BQ11	03/01/2017	ZERO		20,000
CP	BNP PARIBAS SA (NEW YORK BRANCH)	09659BS19	05/01/2017	ZERO		10,000
CP	BNP PARIBAS SA (NEW YORK BRANCH)	09659BQX1	03/31/2017	ZERO		15,000
CP	CREDIT SUISSE AG (NEW YORK BRANCH)	2254EAP15	02/01/2017	ZERO		25,000
CP	CREDIT SUISSE AG (NEW YORK BRANCH)	2254EAT11	06/01/2017	ZERO		10,000
CP	CREDIT SUISSE AG (NEW YORK BRANCH)	2254EAQ14	03/01/2017	ZERO		15,000
CP	EXPORT DEVELOPMENT CANADA	30215GN32	01/03/2017	ZERO		15,000
CP	EXPORT DEVELOPMENT CANADA	30215GNB4	01/11/2017	ZERO		10,000
CP	EXPORT DEVELOPMENT CANADA	30215GN65	01/06/2017	ZERO		10,000
CP	LLOYDS BANK PLC	53943RS18	05/01/2017	ZERO		25,000
CP	LLOYDS BANK PLC	53943RQ10	03/01/2017	ZERO		25,000
CP	NATIXIS (NEW YORK BRANCH)	63873JL16	11/01/2016	ZERO		30,000

CP	NATIXIS (NEW YORK BRANCH)	63873JN30	01/03/2017	ZERO		15,000
CP	NATIXIS (NEW YORK BRANCH)	63873JM15	12/01/2016	ZERO		25,000
CP	NATIXIS (NEW YORK BRANCH)	63873JM98	12/09/2016	ZERO		15,000
CP	ONTARIO (PROVINCE OF)	68323JKB0	10/11/2016	ZERO		20,000
CP	ROYAL BANK OF CANADA	78009AN34	01/03/2017	ZERO		20,000
CP	ROYAL BANK OF CANADA	78009AL10	11/01/2016	ZERO		15,000
CP	TOYOTA MOTOR CREDIT CORP	89233GNX0	01/31/2017	ZERO		20,000
CP	TOYOTA MOTOR CREDIT CORP	89233GT14	06/01/2017	ZERO		15,000
CP	TOYOTA MOTOR CREDIT CORP	89233GQH2	03/17/2017	ZERO		15,000
CP	TOYOTA MOTOR CREDIT CORP	89233AQH5	06/30/2017	FLOAT	1.186	50,000
CP	TOYOTA MOTOR CREDIT CORP	89233GN36	01/03/2017	ZERO		15,000
CP	TOYOTA MOTOR CREDIT CORP	89233GSF4	05/15/2017	ZERO		10,000
CP	TOYOTA MOTOR CREDIT CORP	89233GPU4	02/28/2017	ZERO		10,000
CP	TOYOTA MOTOR CREDIT CORP	89233GS98	05/09/2017	ZERO		15,000
CP	TOYOTA MOTOR CREDIT CORP	89233GNT9	01/27/2017	ZERO		10,000
GOVT	UNITED STATES TREASURY	912828L81	10/15/2018	FIXED	0.875	30,000
GOVT	UNITED STATES TREASURY	912828N97	01/31/2018	FLOAT	0.522	185,000
GOVT	UNITED STATES TREASURY	912828N22	12/15/2018	FIXED	1.250	5,000
GOVT	UNITED STATES TREASURY	912828TB6	06/30/2017	FIXED	0.750	10,000
GOVT	UNITED STATES TREASURY	912828H60	01/31/2017	FLOAT	0.334	100,000
GOVT	UNITED STATES TREASURY	912828UE8	12/31/2017	FIXED	0.750	70,000
GOVT	UNITED STATES TREASURY	912828SJ0	02/28/2017	FIXED	0.875	75,000
GOVT	UNITED STATES TREASURY	912828M72	11/30/2017	FIXED	0.875	35,000
GOVT	UNITED STATES TREASURY	912828H94	02/15/2018	FIXED	1.000	10,000
GOVT	UNITED STATES TREASURY	912828K66	04/30/2017	FIXED	0.500	10,000
GOVT	UNITED STATES TREASURY	912828WP1	06/15/2017	FIXED	0.875	50,000
GOVT	UNITED STATES TREASURY	912828TS9	09/30/2017	FIXED	0.625	75,000
GOVT	UNITED STATES TREASURY	912828WF3	11/15/2016	FIXED	0.625	65,000
GOVT	UNITED STATES TREASURY	912828K41	04/30/2017	FLOAT	0.324	175,000
GOVT	UNITED STATES TREASURY	912828SY7	05/31/2017	FIXED	0.625	10,000
GOVT	UNITED STATES TREASURY	912828H37	01/15/2018	FIXED	0.875	10,000
GOVT	UNITED STATES TREASURY	912828XF2	06/15/2018	FIXED	1.125	45,000
GOVT	UNITED STATES TREASURY	912828XK1	07/15/2018	FIXED	0.875	35,000
GOVT	UNITED STATES TREASURY	912828WA4	10/15/2016	FIXED	0.625	10,000
GOVT	UNITED STATES TREASURY	912828XJ4	06/30/2017	FIXED	0.625	80,000
GOVT	UNITED STATES TREASURY	912828Q52	04/15/2019	FIXED	0.875	10,000
GOVT	UNITED STATES TREASURY	912828Q86	04/30/2018	FLOAT	0.440	200,000

GOVT	UNITED STATES TREASURY	912828XP0	07/31/2017	FIXED	0.625	60,000
GOVT	UNITED STATES TREASURY	912828TM2	08/31/2017	FIXED	0.625	60,000
GOVT	UNITED STATES TREASURY	912828XN5	07/31/2017	FLOAT	0.327	200,000
GOVT	UNITED STATES TREASURY	912828TW0	10/31/2017	FIXED	0.750	95,000
GOVT	UNITED STATES TREASURY	912828UJ7	01/31/2018	FIXED	0.875	40,000
GOVT	UNITED STATES TREASURY	912828SC5	01/31/2017	FIXED	0.875	50,000
GOVT	UNITED STATES TREASURY	912828K25	04/15/2018	FIXED	0.750	52,500
GOVT	UNITED STATES TREASURY	912828M23	10/31/2017	FLOAT	0.418	300,000
GOVT	UNITED STATES TREASURY	912828P53	02/15/2019	FIXED	0.750	10,000
GOVT	UNITED STATES TREASURY	912828S84	07/31/2018	FLOAT	0.424	160,000
GOVT	UNITED STATES TREASURY	912828RU6	11/30/2016	FIXED	0.875	55,000
GOVT	UNITED STATES TREASURY	912828L40	09/15/2018	FIXED	1.000	40,000
GOVT	UNITED STATES TREASURY	912828WH9	05/15/2017	FIXED	0.875	60,000
GOVT	UNITED STATES TREASURY	912828D49	08/15/2017	FIXED	0.875	50,000
GOVT	UNITED STATES TREASURY	912828J68	03/15/2018	FIXED	1.000	65,000
MUNI	COMMONWEALTH OF MASSACHUSETTS	57582PJ92	01/01/2018	FLOAT	1.270	5,000
MUNICIP	CALIFORNIA HEALTH FACs FING AUTH	13032TJM4	11/01/2016	MAT	0.480	16,535
MUNICIP	CALIFORNIA STATE UNIVERSITY	13078FBL9	12/05/2016	MAT	0.900	13,845
MUNICIP	KAISER FOUNDATION HOSPITALS	48306AN52	01/05/2017	ZERO		15,146
MUNICIP	KAISER FOUNDATION HOSPITALS	48306ANA1	01/10/2017	ZERO		40,157
MUNICIP	KAISER FOUNDATION HOSPITALS	48306AN37	01/03/2017	ZERO		20,066
MUNICIP	SOUTH CAROLINA PUBLIC SERVICE AUTHORITY	83705DJN6	11/01/2016	MAT	0.700	16,142
MUNICIP	TEXAS A&M UNIVERSITY SYSTEM BOARD OF REGENTS	88211LAP8	10/17/2016	MAT	0.770	16,750
MUNICIP	TEXAS PUBLIC FINANCE	88276SFP0	10/04/2016	MAT	0.630	39,100
MUNICIP	TEXAS TECH UNIV	88280Q3E6	11/01/2016	MAT	0.740	19,355
MUNICIP	UNIVERSITY OF CALIFORNIA	13078JUU0	10/06/2016	MAT	0.650	9,400
MUNICIP	UNIVERSITY OF CALIFORNIA	91411SL16	11/01/2016	MAT	0.550	25,000
MUNICIP	UNIVERSITY OF TEXAS PERMANENT UNIVERSITY FUND	91513V4C1	11/01/2016	MAT	0.840	20,000
MUNITAX	NEW YORK CITY TRANSITIONAL FIN AUTH	64971WWW8	11/01/2017	FIXED	1.050	18,975
MUNITAX	PASADENA CALIF UNI SCH DIST	702282NB6	11/01/2016	FIXED	0.941	15,060
MUNITAX	STATE BOARD OF ADMINISTRATION FINANCE CORP	34074GDG6	07/01/2018	FIXED	2.107	5,900
MVRDN	DENVER COLO CITY & CNTY	249183UF9	12/01/2031	FLOAT	0.850	22,040
MVRDN	GULF COAST INDL DEV AUTH TEX	402207AD6	11/01/2041	FLOAT	0.750	28,125
MVRDN	ILLINOIS FIN AUTH REV	45200FTB5	08/15/2038	FLOAT	0.830	19,585
MVRDN	LOS ANGELES CALIF DEPARTMENT OF WATER & POWER	544495DY7	07/01/2035	FLOAT	0.810	11,700
MVRDN	LOWER NECHES VALLEY AUTH TEX INDL DEV CORP	54834RAB5	11/01/2029	FLOAT	0.760	39,930
MVRDN	LOWER NECHES VALLEY AUTH TEX INDL DEV CORP	54834RAF6	12/01/2039	FLOAT	0.780	12,380

MVRDN	LOWER NECHES VALLEY AUTH TEX INDL DEV CORP	54834RAC3	11/01/2029	FLOAT	0.780	17,055
MVRDN	LOWER NECHES VALLEY AUTH TEX INDL DEV CORP	54834RAJ8	03/01/2033	FLOAT	0.780	10,330
MVRDN	MASSACHUSETTS ST WTR RES AUTH	576049YH7	08/01/2020	FLOAT	0.900	11,200
MVRDN	MICHIGAN STATE HOUSING DEVELOPMENT AUTHORITY	5946534S3	06/01/2038	FLOAT	0.920	20,000
MVRDN	NEW YORK CITY MUNICIPAL WATER FINANCE AUTHORITY	64972F2J4	06/15/2044	FLOAT	0.890	46,350
MVRDN	NEW YORK CITY MUNICIPAL WATER FINANCE AUTHORITY	64972FWK8	06/15/2039	FLOAT	0.840	15,610
MVRDN	NEW YORK CITY MUNICIPAL WATER FINANCE AUTHORITY	64972GEL4	06/15/2049	FLOAT	0.920	25,000
MVRDN	NEW YORK CITY TRANSITIONAL FIN AUTH	64971WUR9	08/01/2041	FLOAT	0.900	33,000
MVRDN	NEW YORK CITY TRANSITIONAL FIN AUTH	64971WUK4	02/01/2045	FLOAT	0.860	11,650
MVRDN	NEW YORK N Y	64966LLS8	03/01/2040	FLOAT	0.860	24,800
MVRDN	OKLAHOMA TRANSN AUTH OK F K A OKLAHOMA ST TPK AUTH	679111TB0	01/01/2028	FLOAT	0.830	20,800
MVRDN	OREGON ST HSG & CMNTY SVCS DEPT	686087TC1	07/01/2045	FLOAT	0.890	15,500
MVRDN	OREGON ST HSG & CMNTY SVCS DEPT MTG REV	686087GS0	07/01/2037	FLOAT	0.900	32,650
MVRDN	RENO NEV	759861CF2	06/01/2042	FLOAT	0.960	25,100
MVRDN	TEXAS STATE OF	882723QF9	06/01/2045	FLOAT	0.850	11,700
MVRDN	TEXAS STATE OF	882723J67	12/01/2046	FLOAT	0.840	14,000
MVRDN	UNIVERSITY OF CALIFORNIA	913366GN4	05/15/2047	FLOAT	0.870	21,000
MVRDN	UNIVERSITY OF MICHIGAN	914455MB3	12/01/2024	FLOAT	0.760	8,500
MVRDN	UNIVERSITY OF TEXAS SYSTEM	91514AEY7	08/01/2045	FLOAT	0.740	7,000
MVRDN	UTAH CNTY UTAH	917393CC2	05/15/2051	FLOAT	0.830	32,500
MVRDN	VIRGINIA COLLEGE BLDG AUTH VA	927781CQ5	02/01/2026	FLOAT	0.780	32,425
MVRDN	WEBER CNTY UTAH	947648CD1	02/15/2031	FLOAT	0.850	37,500
OPEN_END	OREGON LOCAL GOVERNMENT INTERMEDIATE FUND	BOS0R8MZ9		FIXED		1,000
TBILL	UNITED STATES TREASURY	912796JN0	10/06/2016	ZERO		15,000
TD	LEWIS AND CLARK BANK	BOS0RTD67	11/09/2016	MAT	0.660	3,000
TD	LEWIS AND CLARK BANK	BOS0R1C85	10/12/2016	MAT	0.640	3,000
TD	PACIFIC CONTINENTAL BANK	BOS0RTD59	12/14/2016	MAT	0.810	15,000
TD	PACIFIC CONTINENTAL BANK	BOS0R1C77	11/09/2016	MAT	0.780	15,000

TAB 6 – Q3 2016 Performance & Risk Report

OPERF

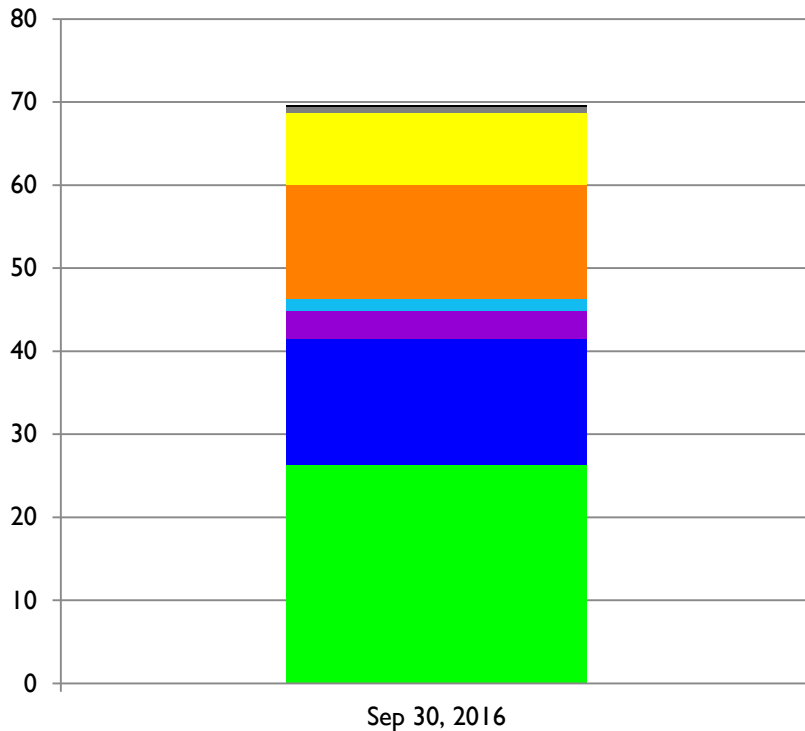


2016 Q3 OPERF Risk Dashboard

December 7, 2016

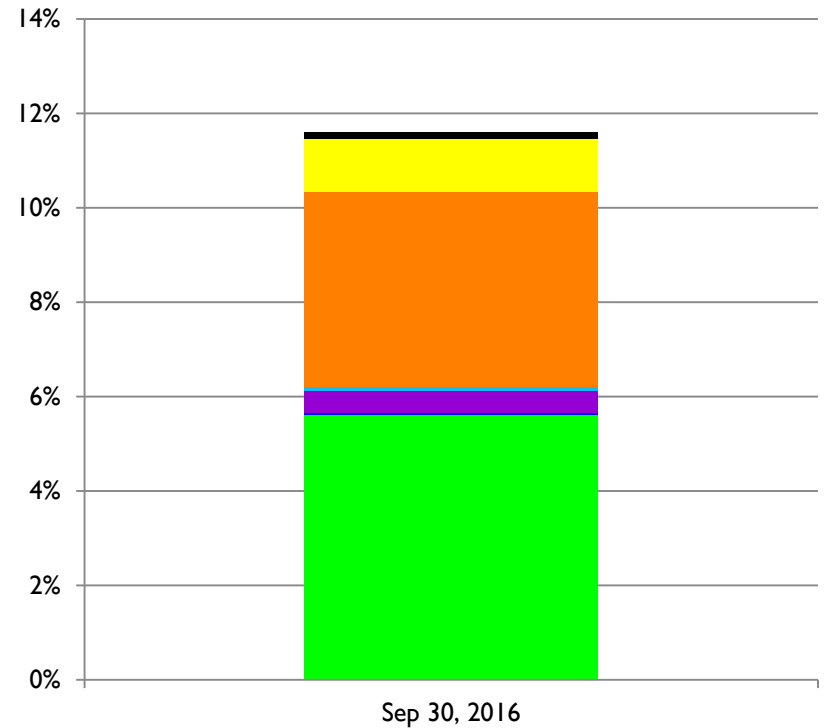
Capital Allocation & Risk Contribution by Asset Class

Allocation in \$B



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

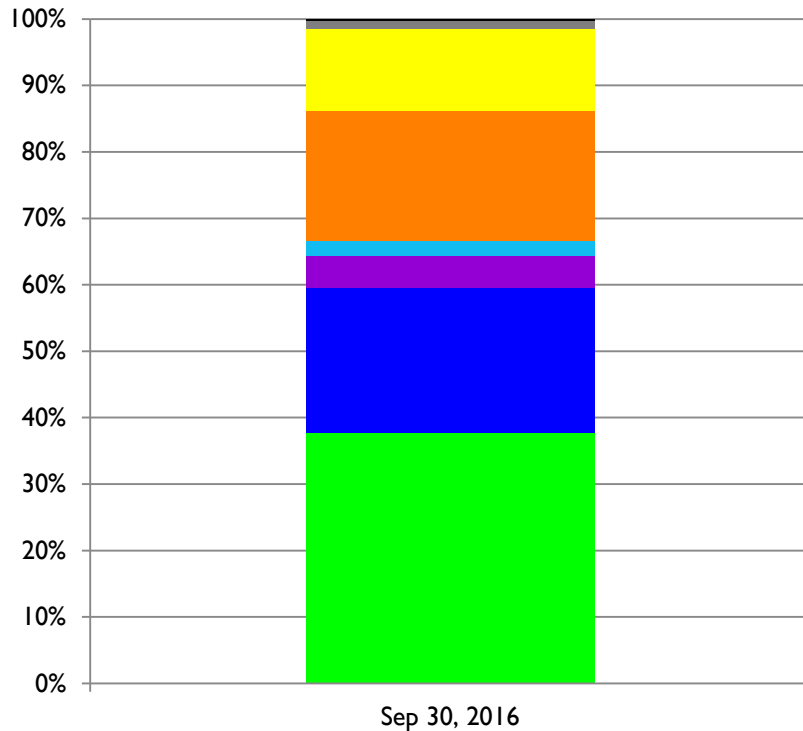
Risk Contribution



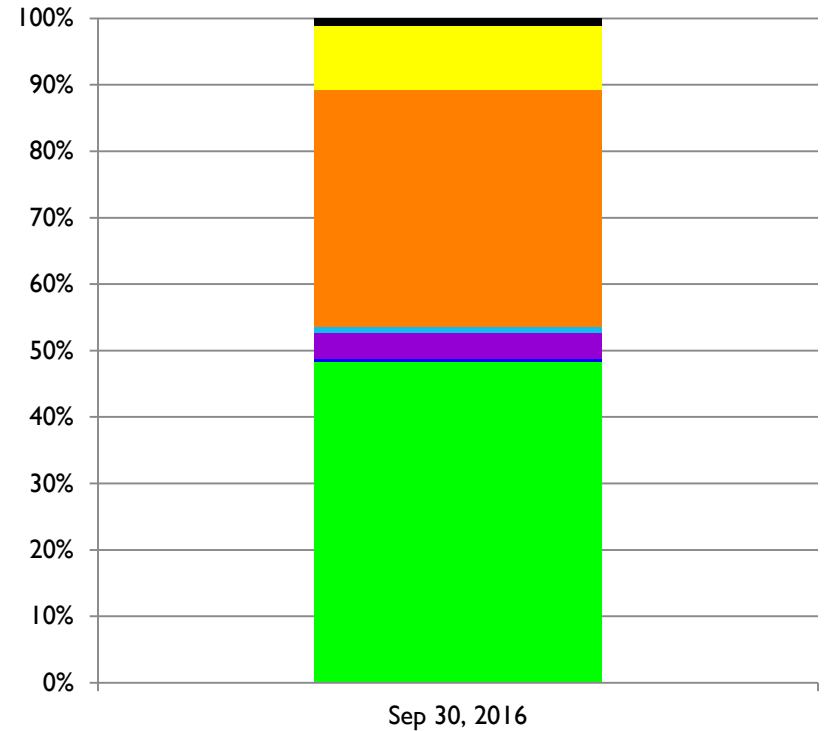
- Equity
- Fixed Income
- Alternatives Portfolio
- Opportunity Portfolio
- Private Equity
- Real Estate
- Cash
- Overlay

Scaled Capital Allocation & Risk Contribution by Asset Class

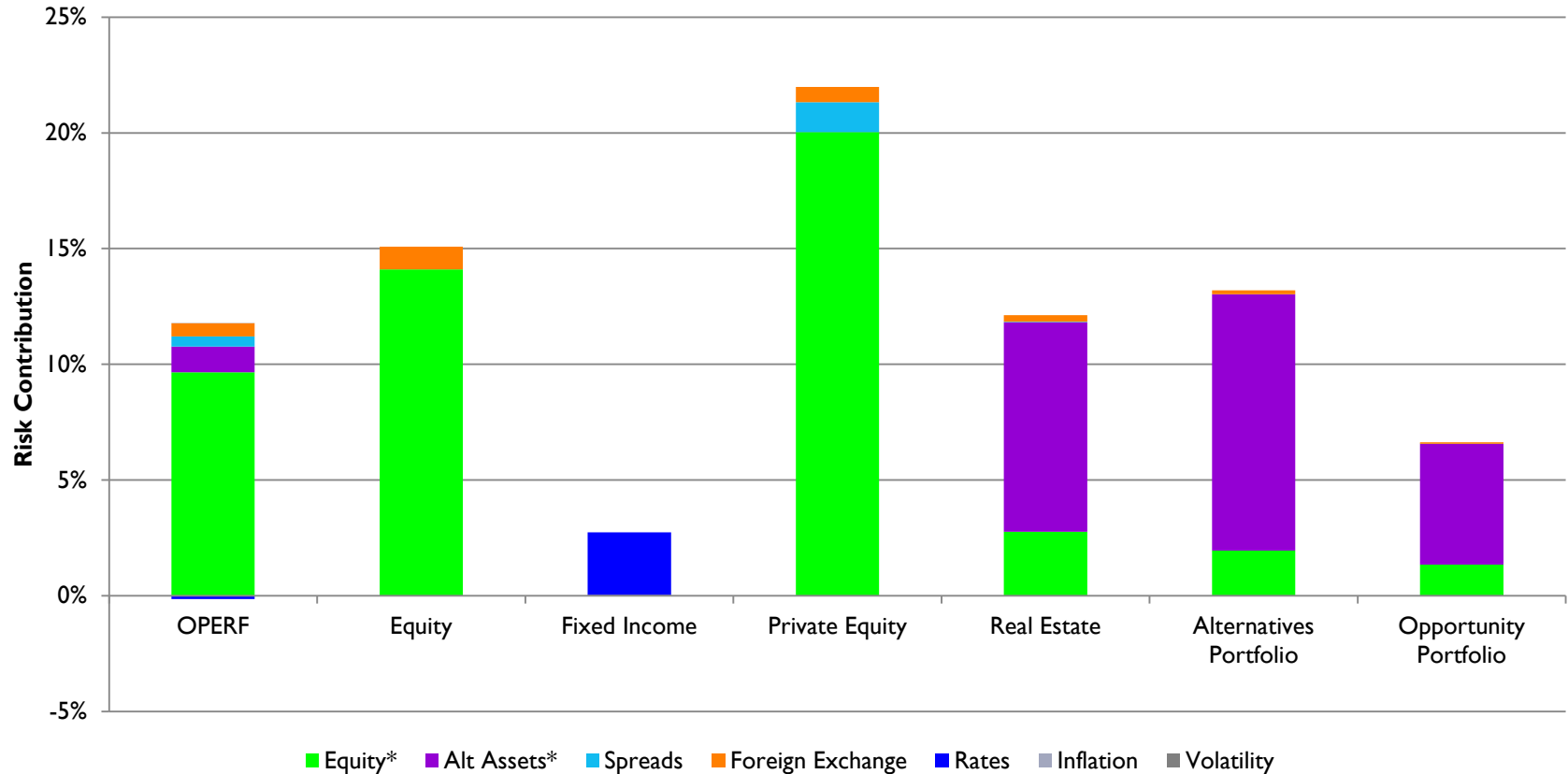
Allocation % of Total



Risk Contribution % of Total



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.

Correlation Matrix by Asset Class

Sep 30, 2016	Equity	Fixed Income	Alternatives Portfolio	Opportunity Portfolio	Private Equity	Real Estate	OPERF
Equity	1.00	0.02	0.64	0.68	0.89	0.67	0.98
Fixed Income		1.00	0.06	0.15	-0.04	0.29	0.09
Alternatives Portfolio			1.00	0.58	0.65	0.44	0.69
Opportunity Portfolio				1.00	0.69	0.43	0.71
Private Equity					1.00	0.58	0.95
Real Estate						1.00	0.73
OPERF							1.00

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

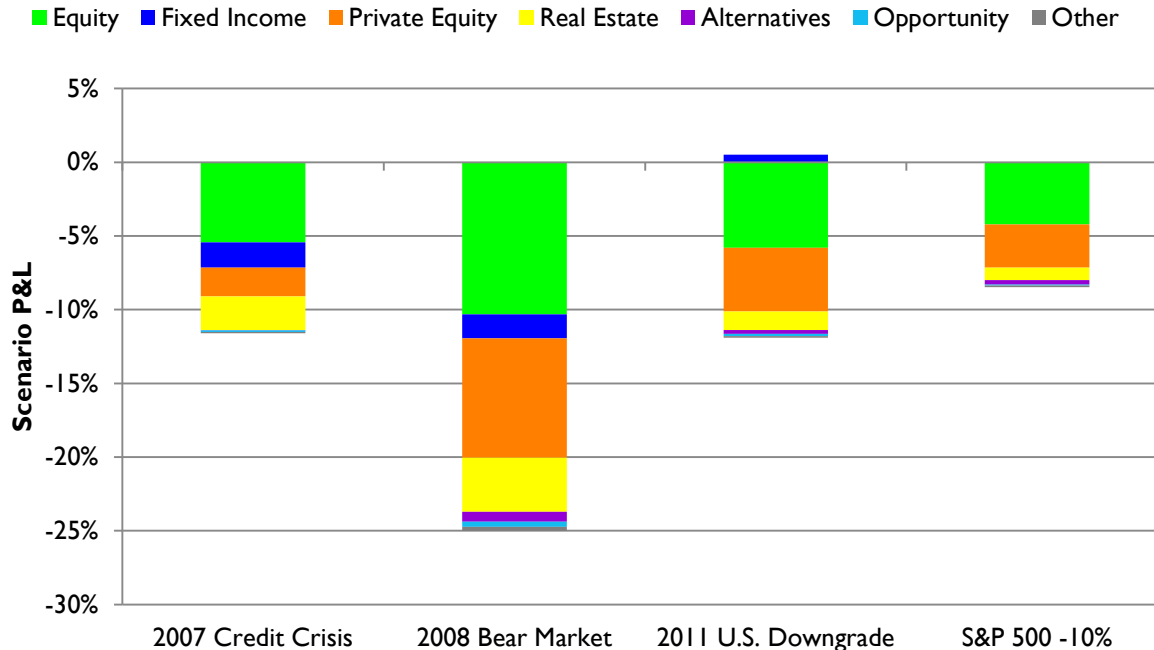
Scenario Analysis with Performance Contributions by Asset Class

Scenario Definitions

2007 Credit Crisis: June 29, 2007 to July 1, 2008. Credit & liquidity crisis stemming from a severe slowdown in the housing market causing significant spread widening and increased implied volatility.

2008 Market Crash: September 12, 2008 to November 3, 2008. Credit and liquidity crisis and equity market crash set off by Lehman Brothers bankruptcy. Significant spread widening caused by massive deleveraging.

2011 US Downgrade: July 21, 2011 to September 20, 2011. The period starts with a 50% chance of a U.S. downgrade by S&P and ends with the announcement of "Operation Twist" by the Fed. U.S. stock market incurred losses while U.S. bonds rallied on flight-to-safety flows.



	2007 Credit Crisis	2008 Bear Market	2011 U.S. Downgrade	S&P 500 -10%
Equity	-5.4%	-10.3%	-5.8%	-4.2%
Fixed Income	-1.7%	-1.6%	0.5%	0.0%
Private Equity	-2.0%	-8.1%	-4.3%	-2.9%
Real Estate	-2.3%	-3.7%	-1.3%	-0.8%
Alternatives	0.0%	-0.7%	-0.3%	-0.3%
Opportunity	-0.1%	-0.4%	-0.2%	-0.1%
Other	-0.1%	-0.3%	-0.1%	-0.1%
Total	-11.6%	-25.0%	-11.4%	-8.5%

Liquidity Report

Asset Class	Liquidity (\$M)				∞	Uncalled Commitment	Next 12 Months
	1 Week	1 Month	1 Quarter				
Cash & Overlay	936						
Public Equity	23,722	1,627	1,053				
Fixed Income	11,375	3,199					
Private Equity				13,731	-9,357		
Real Estate	2,099			6,655	-2,173		
Alternatives	210			3,287	-2,683		
Opportunity				1,456	-770		
Pension Benefits							-3,000
Total	38,342	4,826	1,053	25,128	-14,983		-3,000

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

Public Equity - 1 Quarter = Lazard Closed-End Fund & Wells Cap Mgmt Closed-End Fund portfolios

Fixed Income - 1 Month = Below Investment Grade

Real Estate - 1 Week = REIT composite

Alternatives - 1 Week = SailingStone

- ▶ Chart 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	5,752	8.3%	Cash, Public Equity
2	Dimensional Fund Advisors	4,693	6.8%	Public Equity
3	BlackRock	4,503	6.5%	Fixed Income, Public Equity
4	KKR	3,676	5.3%	Fixed Income, Private Equity
5	AB (f/k/a AllianceBernstein)	3,666	5.3%	Fixed Income, Public Equity
6	Wellington	3,278	4.7%	Fixed Income, Public Equity
7	Western Asset Management	2,844	4.1%	Fixed Income
8	AQR	2,288	3.3%	Alternatives, Public Equity
9	Arrowstreet Capital	1,707	2.5%	Public Equity
10	Oak Hill Advisors	1,646	2.4%	Fixed Income, Private Equity



2015/2016 OIC-Approved Initiatives

- ▶ **Fixed Income Portfolio Rebalance**
 - ▶ Add Rate Exposure via rebalance from Short-Term High Quality investments to Long-Duration U.S. Treasuries
 - ▶ Approved by the OIC in December 2015, Implemented by March 2016
- ▶ **Real Estate Portfolio Rebalance**
 - ▶ Rotate from Opportunistic & REITs to Core
 - ▶ Approved by the OIC in December 2015
- ▶ **Increased Diversifying Strategies investments within the Alternatives Portfolio**
 - ▶ Expansion of AQR mandate(s)
 - ▶ Approved by the OIC in October 2015 (funded in early 2016) and October 2016
- ▶ **Public Equity Portfolio Rebalance**
 - ▶ Allocate a significant fraction of the Portfolio to low-volatility strategies
 - ▶ Approved by the OIC in October 2016

2017 Topics

- ▶ **Currency Risk**

- ▶ In collaboration with Jen Plett
- ▶ Introduce the topic to the board and review potential approaches to currency management

- ▶ **Liquidity Management**

- ▶ In collaboration with Garrett Cudahey
- ▶ Review OPERF cash management, Overlay Program, and other possible tools

- ▶ **Asset Allocation & Capital Market Assumptions Update**

- ▶ Follow-up from June 2015 Strategic Asset Allocation and September 2016 Joint Board Discussion

December 7, 2016



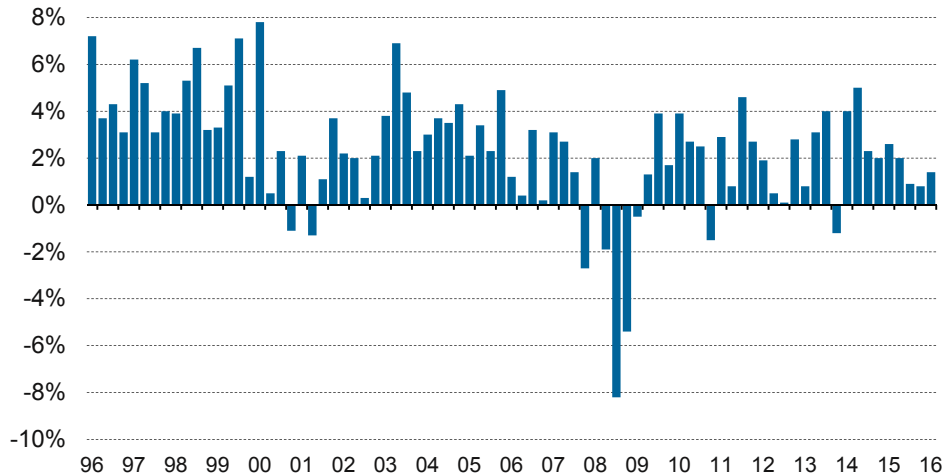
Oregon Investment Council

Third Quarter 2016
Performance Review

Economic Commentary

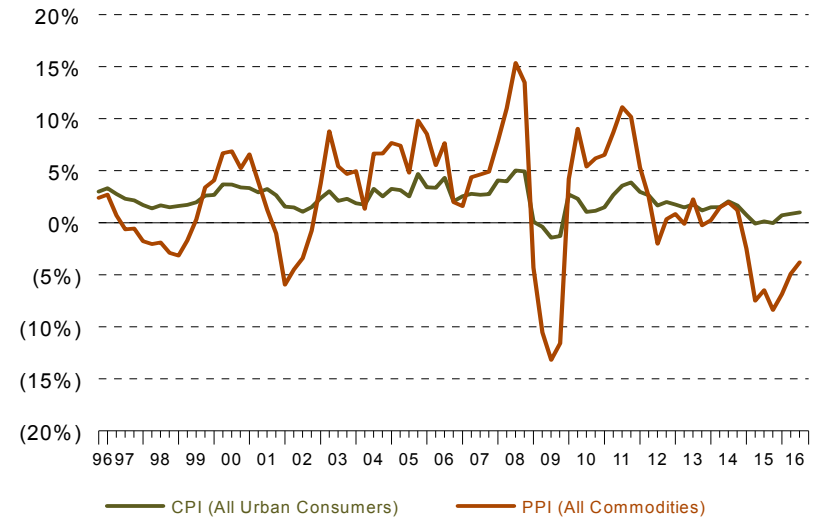
Third Quarter 2016

Quarterly Real GDP Growth (20 Years)



Source: Bureau of Economic Analysis

Inflation Year-Over-Year



Source: Bureau of Labor Statistics

- The US economy remains slow but steady. The second quarter GDP was revised modestly higher to +1.4%, boosted by robust consumer spending. Fed policymakers now expect growth for all of 2016 to be 1.8%, down from the June expectation of 2.0%.
- The job market remained steady, with job growth averaging 192,000 in the third quarter. Unemployment ticked up slightly to 5.0%, given the increase in labor force. Wages showed signs of improvement, rising 2.6% over the last twelve months; up from August's 2.4% but down slightly from July's 2.7% which had been the highest in seven years.
- The Consumer Price Index for All Urban Consumers (CPI-U) remained muted, up 1.5% for the trailing one year period. Less Food and Energy, CPI-U was up 2.2% for the 12 months ended September 30, 2016.

Market Summary – Third Quarter 2016

Index	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years	Last 15 Years
U.S. Equity:						
Russell:3000 Index	4.40	14.96	10.44	16.36	7.37	7.61
S&P:500	3.85	15.43	11.16	16.37	7.24	7.15
Russell:1000 Index	4.03	14.93	10.78	16.41	7.40	7.48
Russell:1000 Growth	4.58	13.76	11.83	16.60	8.85	7.35
Russell:1000 Value	3.48	16.20	9.70	16.15	5.85	7.46
Russell:Midcap Index	4.52	14.25	9.70	16.67	8.32	10.44
Russell:Midcap Growth	4.59	11.24	8.90	15.85	8.51	9.66
Russell:Midcap Value	4.45	17.26	10.49	17.38	7.89	10.72
Russell:2000 Index	9.05	15.47	6.71	15.82	7.07	9.26
Russell:2000 Growth	9.22	12.12	6.58	16.15	8.29	8.90
Russell:2000 Value	8.87	18.81	6.77	15.45	5.78	9.38
U.S. Fixed Income:						
BB Barclays:Aggregate Idx	0.46	5.19	4.03	3.08	4.79	4.80
BB Barclays:Gov/Credit	0.40	5.86	4.22	3.24	4.86	4.90
BB Barclays:Long Gov/Cr	1.24	14.66	10.08	6.32	7.84	7.61
BB Barclays:Gov/Cred 1-3Y	0.02	1.31	1.09	1.05	2.59	2.80
BB Barclays:Credit	1.23	8.30	5.44	4.83	5.77	5.78
BB Barclays:Mortgage Idx	0.60	3.61	3.61	2.65	4.65	4.61
BB Barclays:Corp High Yld	5.55	12.73	5.28	8.34	7.71	8.63
BB Barclays:US Universal	0.96	6.11	4.27	3.62	5.00	5.12
Real Estate:						
NCREIF:Total Index	1.77	9.22	11.31	11.18	7.22	8.93
FTSE:NAREIT Composite Idx	(0.88)	20.76	13.49	15.39	5.77	10.78
Global Equity:						
MSCI:ACWI Gross	5.43	12.60	5.74	11.23	4.90	7.01
MSCI:ACWI IMI	5.57	12.25	5.24	10.87	4.63	7.08
Non-U.S. Equity:						
MSCI:EAFE	6.43	6.52	0.48	7.39	1.82	5.81
MSCI:EAFE LC	6.04	4.62	5.30	11.21	2.19	4.47
MSCI:ACWI ex US Gross	7.00	9.80	0.64	6.52	2.63	7.02
MSCI:ACWI ex US LC	6.40	6.90	5.21	9.88	2.91	5.48
MSCI:ACWI ex US Small Cap	7.91	13.38	3.52	8.60	4.58	10.47
MSCI:EM Gross	9.15	17.21	(0.21)	3.39	4.28	11.90
Other:						
3 Month T-Bill	0.10	0.27	0.11	0.10	0.92	1.37
US DOL:CPI All Urban Cons	0.17	1.46	1.03	1.25	1.75	2.04

- Investor angst over the unexpected vote on Brexit was short-lived with a "risk-on" theme returning to the markets in July and leading to stock market highs for the Dow, NASDAQ and S&P 500 in August.
- The Fed continued to stay the course, leaving the fed funds rate unchanged at a target range of 0.25% - 0.50%, but the number of dissenting votes at the September meeting marked a shift in sentiment for the Board.
- Real GDP was revised modestly higher to +1.4% for the second quarter in a continuation of the slow but steady pace over the past three quarters. Consumer spending, which represents two-thirds of GDP, remained robust at a growth rate of 4.3%. Consumer confidence jumped to its highest level since August 2007.
- In a new development, REITs and other listed real estate companies were extracted from the Financials Sector and elevated to a new Real Estate sector in the Global Industry Classification Standard (GICS). The new Real Estate sector, representing 3.1% of the S&P 500, finished the quarter with a -2.1% return.
- Foreign developed market indices outperformed the S&P 500 and, consistent with the quarter's risk-on theme, emerging markets were the top performers.
- Yields in the US moved modestly higher during the quarter with the 10-year US Treasury yield rising 11 bps to close at 1.60%. However, the Treasury note did hit a record low of 1.37% on July 8th at the height of the Brexit-induced worries before trending higher through the remainder of the quarter.
- Overseas, yields were generally lower with Mexico and Japan being exceptions. There is now over \$12 trillion of negative yielding debt globally with Japan accounting for nearly half of that amount and Western Europe the other half; namely France, Germany, and the Netherlands.

Market Summary

Third Quarter 2016

Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
MSCI:EM Gross 9.2%	MSCI:EM Gross 17.2%	NFI-ODCE Val Gross 12.5%	S&P:500 16.4%	ML:High Yield CP Idx 7.5%
Russell:2000 Index 9.0%	Russell:2000 Index 15.5%	S&P:500 11.2%	Russell:3000 Index 16.4%	Russell:3000 Index 7.4%
MSCI:ACWI ex US 6.9%	S&P:500 15.4%	Russell:3000 Index 10.4%	Russell:2000 Index 15.8%	S&P:500 7.2%
ML:High Yield CP Idx 5.5%	Russell:3000 Index 15.0%	Russell:2000 Index 6.7%	NFI-ODCE Val Gross 12.4%	Russell:2000 Index 7.1%
Russell:3000 Index 4.4%	ML:High Yield CP Idx 12.8%	ML:High Yield CP Idx 5.2%	ML:High Yield CP Idx 8.2%	NFI-ODCE Val Gross 6.0%
S&P:500 3.9%	NFI-ODCE Val Gross 10.1%	BB Barclays:Aggregate Idx 4.0%	MSCI:ACWI ex US 6.0%	BB Barclays:Aggregate Idx 4.8%
NFI-ODCE Val Gross 2.1%	MSCI:ACWI ex US 9.3%	MSCI:ACWI ex US 0.2%	MSCI:EM Gross 3.4%	MSCI:EM Gross 4.3%
BB Barclays:Aggregate Idx 0.5%	BB Barclays:Aggregate Idx 5.2%	3 Month T-Bill 0.1%	BB Barclays:Aggregate Idx 3.1%	MSCI:ACWI ex US 2.2%
3 Month T-Bill 0.1%	3 Month T-Bill 0.3%	MSCI:EM Gross (0.2%)	3 Month T-Bill 0.1%	3 Month T-Bill 0.9%

OPERF Total Regular Account

Performance Summary for the Third Quarter 2016

Total Fund:

In the third quarter of 2016, the Total Regular Account rose 3.31% (+3.24% net of fees), roughly in-line with the 3.29% return for the Policy Target, and ranked in 62nd percentile of the \$10B+ public fund peer group. For the 12 months ended September 30, 2016, the Account gained 8.10% (+7.82% net of fees) versus 8.62% for the Policy Target, and ranked in the 76th of Callan's \$10B+ public fund peer group.

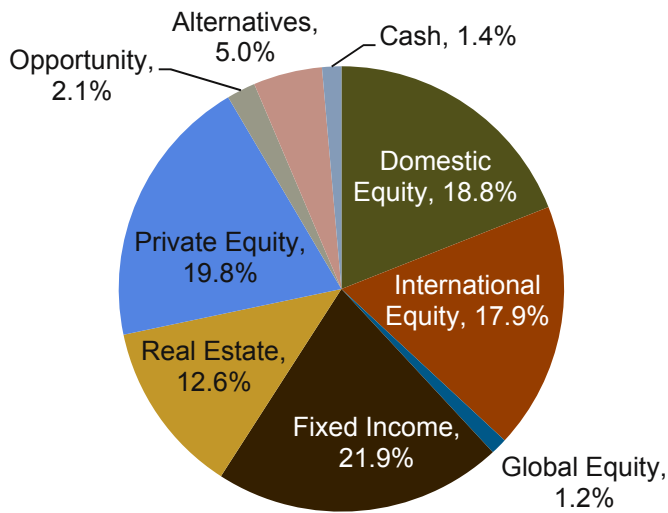
Asset Classes:

- **U.S. Equity:** The U.S. Equity Portfolio earned 4.96% (+4.93% net of fees) for the quarter, beating the 4.40% gain in the Russell 3000 Index. This return ranked the Portfolio in the top quartile of Callan's Public Fund: \$10B+ Domestic Equity (gross) peer group. On a trailing 12 month basis, the Portfolio gained 13.93% (+13.80% net of fees) versus a gain of 14.96% for the benchmark and ranked in the 71st percentile of the peer group. 10 year results are solid on an absolutely basis but just trail the benchmark and rank in the third quartile of the peer group.
- **International Equity:** The International Equity Portfolio gained 7.00% (+6.89% net of fees) for the quarter, just trailing the against the 7.05% rise in 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 soared 11.18% (+10.73% net of fees), handily beating the 9.81% return of the benchmark. This one year return ranked the portfolio at 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.
- **Fixed Income:** The Fixed Income Portfolio appreciated 1.22% (+1.17% net of fees) for the quarter, well ahead of the 0.72% return of the Custom Benchmark, and ranked in the 56th percentile of Callan's Public Funds \$10+B US Fixed income (Gross) peer group. For the trailing year, the Portfolio rose 5.11% (+4.89% net of fees) versus a rise of 4.25% for the benchmark, and ranked in the 82nd percentile of the peer group. 10 year results continue to be ahead of the benchmark and rank favorably versus the peer group.
- **Private Equity:** The Private Equity Portfolio's returns remain strong on an absolute basis over longer term periods but relative results are challenged versus the benchmark.
- **Real Estate:** The Real Estate Portfolio continues to show solid absolute results over the last decade though relative results are mixed.

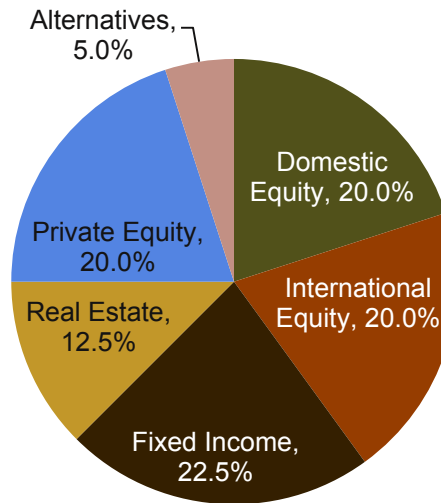
OPERF Total Regular Account

Asset Allocation as of September 30, 2016

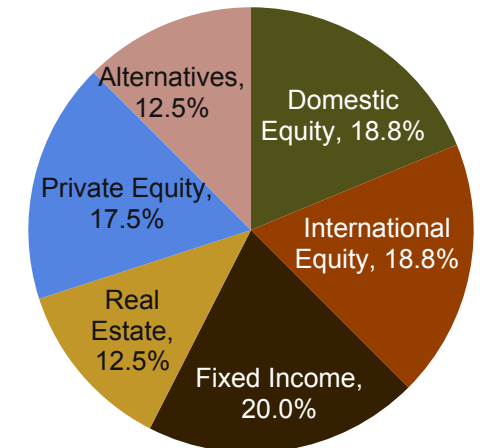
Actual Allocation



Interim Policy Target



Strategic Policy Target*



Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	13,174,541	19.0%	20.0%	(1.0%)	(696,149)
International Equity	12,396,344	17.9%	20.0%	(2.1%)	(1,474,345)
Global Equity	834,837	1.2%	0.0%	1.2%	834,837
Fixed Income	14,574,444	21.0%	22.5%	(1.5%)	(1,030,080)
Real Estate	8,754,050	12.6%	12.5%	0.1%	84,869
Private Equity	13,731,084	19.8%	20.0%	(0.2%)	(139,605)
Opportunity	1,455,524	2.1%	0.0%	2.1%	1,455,524
Alternative	3,496,307	5.0%	5.0%	0.0%	28,635
Cash	936,314	1.4%	0.0%	1.4%	936,314
Total	69,353,446	100.0%	100.0%		

*Targets established in June 2015

OPERF Total Regular Account

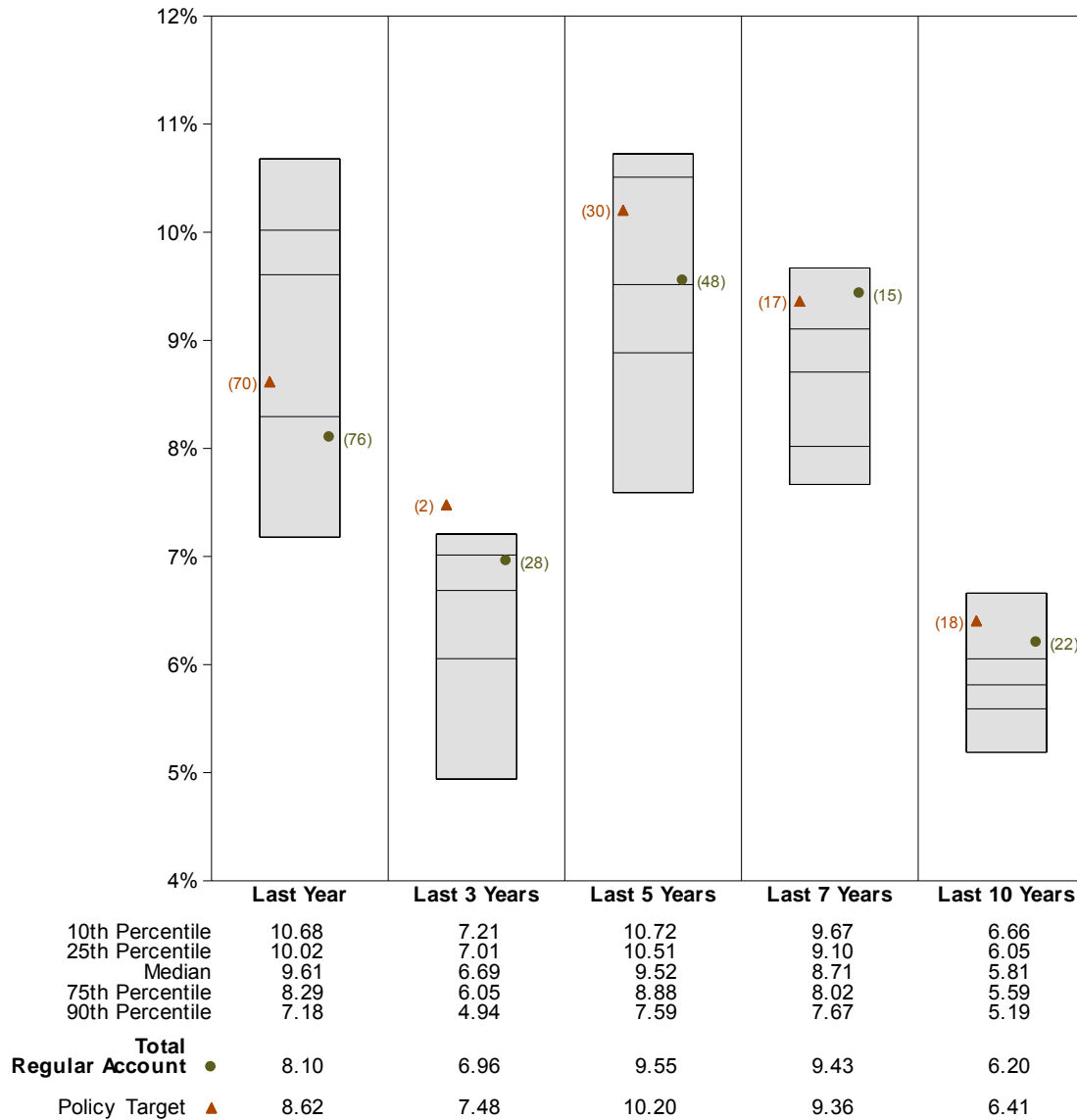
Net Performance by Asset Class as September 30, 2016

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Total Public Equity	5.90%	12.14%	5.50%	11.68%	4.80%
MSCI ACWI IMI Net	5.57%	12.25%	5.24%	10.87%	4.63%
Domestic Equity	4.93%	13.80%	9.00%	15.71%	7.00%
Russell 3000 Index	4.40%	14.96%	10.44%	16.36%	7.37%
International Equity	6.89%	10.73%	2.12%	8.03%	3.80%
MSCI ACWI ex-US IMI Index	7.05%	9.81%	0.62%	6.37%	2.61%
Total Fixed Income	1.17%	4.89%	3.51%	4.56%	5.69%
Custom FI Benchmark	0.72%	4.25%	3.05%	3.91%	4.74%
CAI Pub Fund: 10+ US FI	1.45%	7.14%	4.53%	4.01%	5.33%
Total Real Estate	1.15%	10.11%	11.28%	12.05%	5.82%
Total Real Estate ex REITs	1.28%	9.01%	11.60%	11.75%	5.79%
NCREIF Property Index Qtr Lag	2.13%	10.72%	11.63%	11.53%	7.41%
Public Plan - Real Estate	1.13%	9.27%	11.06%	11.43%	5.12%
Total Private Equity	1.80%	2.59%	10.63%	10.10%	9.48%
Russell 3000 + 300 BPS Qtr Lag	3.39%	5.20%	14.43%	14.92%	11.00%
Total Alternative	4.04%	3.13%	1.57%	0.95%	-
CPI + 4%	1.16%	5.53%	5.07%	5.30%	-
Opportunity Portfolio	1.75%	3.18%	5.74%	8.55%	6.54%
Russell 3000 Index	4.40%	14.96%	10.44%	16.36%	7.37%
CPI + 5%	1.31%	6.22%	5.72%	6.04%	6.74%
Total Regular Account	3.24%	7.82%	6.69%	9.28%	5.94%
Total Regular Account ex-Overlay	3.19%	7.67%	6.62%	9.20%	5.94%
OPERF Policy Benchmark*	3.29%	8.62%	7.48%	10.20%	6.41%

*Policy Benchmark = 41.5% MSCI ACWI-net, 23.5% Custom FI Benchmark, 20.0% Russell 3000 + 300 BPS Qtr Lag, 12.5% NCREIF Property Index Qtr Lag, 2.5% CPI + 400 bps

OPERF Total Regular Account

Gross Performance and Peer Group Rankings as of September 30, 2016*



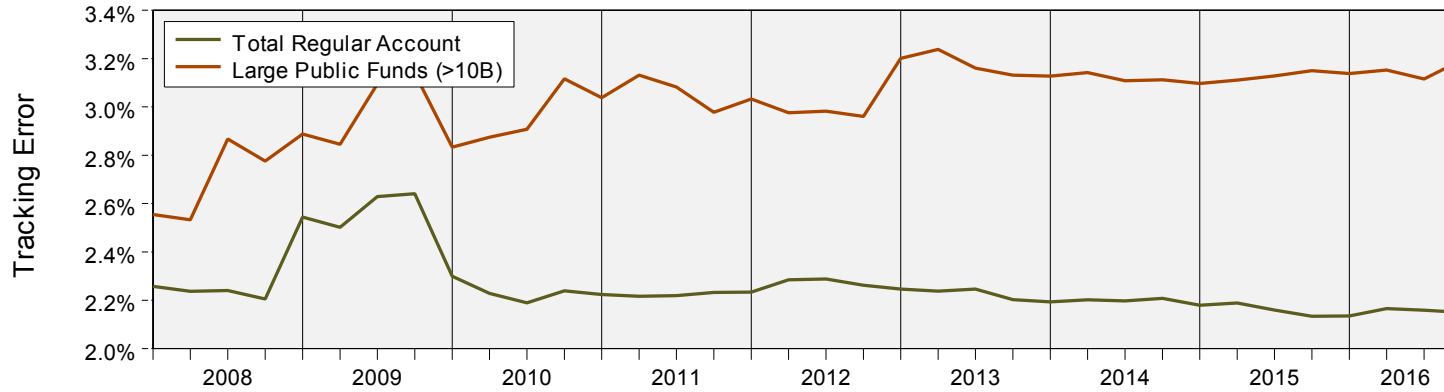
*Versus Callan's Very Large Public Funds (> \$10 billion) Peer Group

Policy target= 41.5% MSCI ACWI-net, 23.5% Custom FI Benchmark, 20.0% Russell 3000 + 300 BPS Qtr Lag, 12.5% NCREIF Property Index Qtr Lag, 2.5% CPI + 400 bps

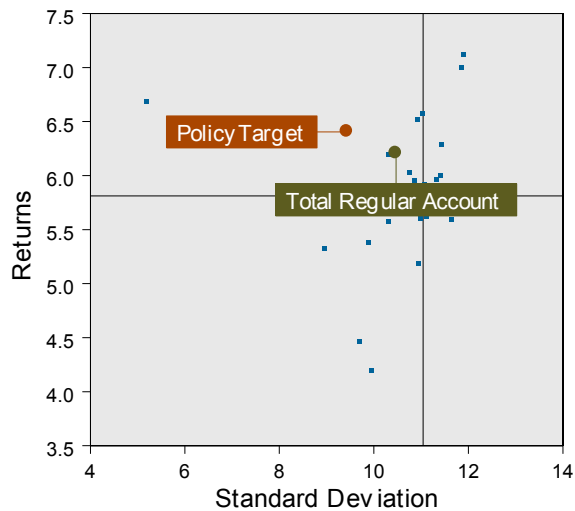
OPERF Total Regular Account

Risk Analysis vs. Very Large Public Funds (>10 billion)
Ten Years ended September 30, 2016

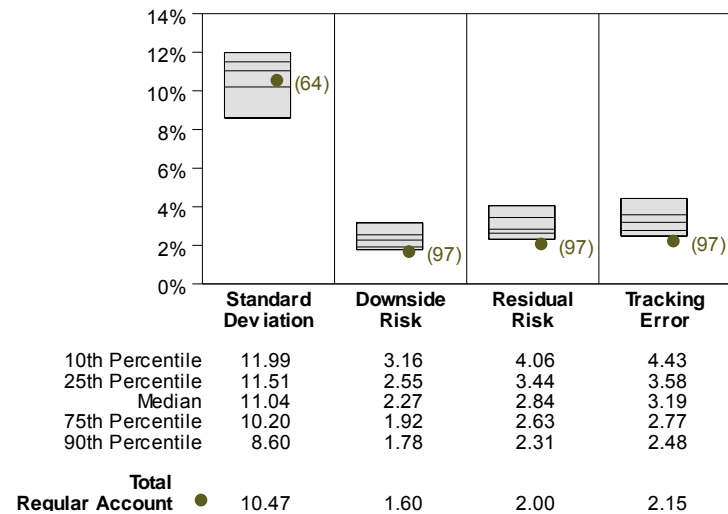
Rolling 40 Quarter Tracking Error vs Policy Target



Risk Analysis vs Very Large Public Funds (>10B) (Gross)
Ten Years Ended September 30, 2016



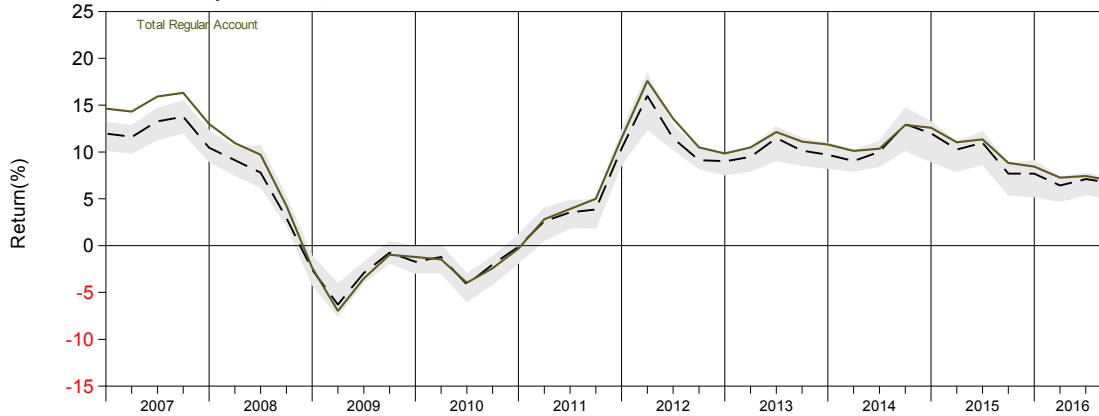
Risk Statistics Rankings vs Policy Target
Rankings Against Very Large Public Funds (>10B) (Gross)
Ten Years Ended September 30, 2016



OPERF Total Regular Account

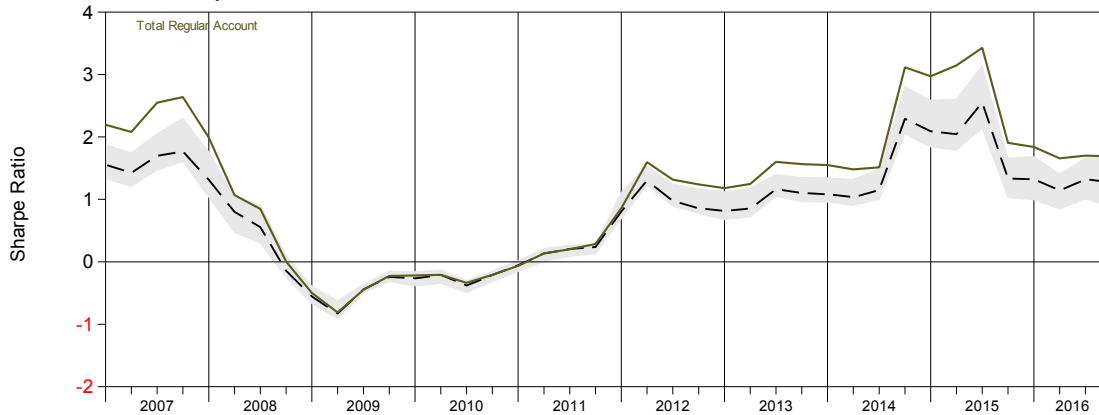
Historical Consistency Analysis vs. Very Large Public Funds (>10 billion)

Rolling Three Year Return(%) Relative to Policy Target
Ten Years Ended September 30, 2016



Rolling Three Year Period Analysis	Median	Portfolio
Average Annual Return(%)	6.67%	7.56%
% Positive Periods	78%	78%
Average Ranking	50	27

Rolling Three Year Sharpe Ratio Relative to Policy Target
Ten Years Ended September 30, 2016



Rolling Three Year Period Analysis	Median	Portfolio
Average Annual Sharpe Ratio	0.82%	1.19%
% Positive Periods	75%	78%
Average Ranking	50	17

OPERF Public Equity

Asset Distribution as of September 30, 2016

	Market Values	% of Total Fund
Total Public Equity	\$ 26,405,722,103	38.07%
Domestic Equity	\$ 13,174,540,756	19.00%
Large Cap Growth	\$ 940,304,697	1.36%
Large Cap Value	\$ 1,915,096,099	2.76%
Small Cap Growth	\$ 135,564,951	0.20%
Small Cap Value	\$ 822,084,860	1.19%
U.S. Core	\$ 9,358,661,967	13.49%
Other	\$ 2,828,182	0.00%
International Equity	\$ 12,396,344,337	17.87%
International Core	\$ 6,055,401,407	8.73%
International Value	\$ 1,764,945,078	2.54%
International Growth	\$ 1,375,799,741	1.98%
International Small Cap	\$ 1,413,708,546	2.04%
Emerging Markets	\$ 1,786,489,565	2.58%
Global Equity	\$ 834,837,010	1.20%

OPERF Public Equity

Style Exposure

**Style Exposure Matrix
Holdings as of September 30, 2016**

Large	21.3% (277)	20.3% (256)	20.8% (329)	62.4% (862)
	23.4% (281)	23.3% (258)	23.3% (320)	70.0% (859)
Mid	8.3% (393)	8.5% (534)	8.7% (576)	25.6% (1503)
	5.1% (456)	6.8% (588)	7.4% (674)	19.2% (1718)
Small	2.8% (907)	3.6% (935)	2.6% (639)	9.0% (2481)
	2.9% (1070)	3.5% (1261)	2.8% (1107)	9.2% (3438)
Micro	1.2% (2212)	1.2% (1671)	0.6% (838)	3.0% (4721)
	0.7% (1000)	0.6% (878)	0.4% (698)	1.7% (2576)
Total	33.7% (3789)	33.5% (3396)	32.7% (2382)	100.0% (9567)
	32.0% (2807)	34.2% (2985)	33.8% (2799)	100.0% (8591)
	Value	Core	Growth	Total

**Style Exposure Matrix
Holdings as of September 30, 2016**

Europe/ Mid East	6.2% (492)	5.3% (437)	8.9% (386)	20.4% (1315)
	6.5% (470)	5.3% (468)	9.0% (504)	20.8% (1442)
N. America	20.0% (898)	22.8% (1109)	14.1% (643)	56.8% (2650)
	17.2% (775)	22.3% (1136)	16.0% (847)	55.5% (2758)
Pacific	3.1% (874)	3.3% (551)	4.8% (404)	11.1% (1829)
	4.2% (602)	3.6% (552)	4.6% (540)	12.5% (1694)
Emerging/ FM	3.7% (1525)	3.5% (1299)	4.4% (949)	11.6% (3773)
	4.0% (960)	3.0% (829)	4.3% (908)	11.2% (2697)
Total	33.0% (3789)	34.9% (3396)	32.2% (2382)	100.0% (9567)
	32.0% (2807)	34.2% (2985)	33.8% (2799)	100.0% (8591)
	Value	Core	Growth	Total

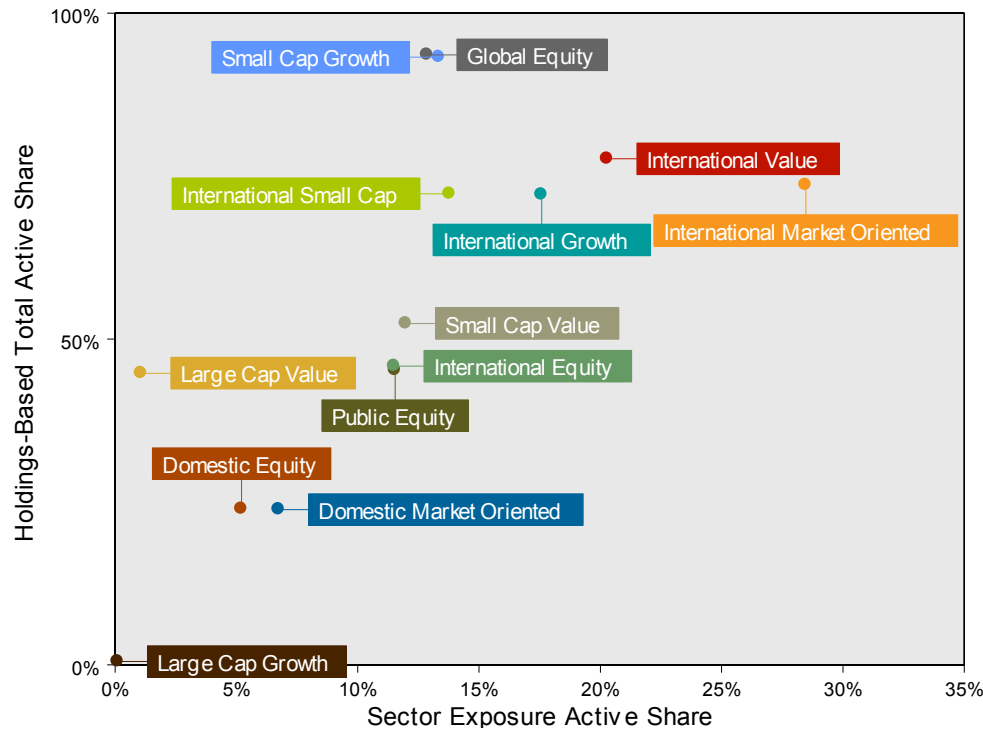
- Public Equity
- MSCI ACWI IMI

Percentages may not sum to 100% due to rounding

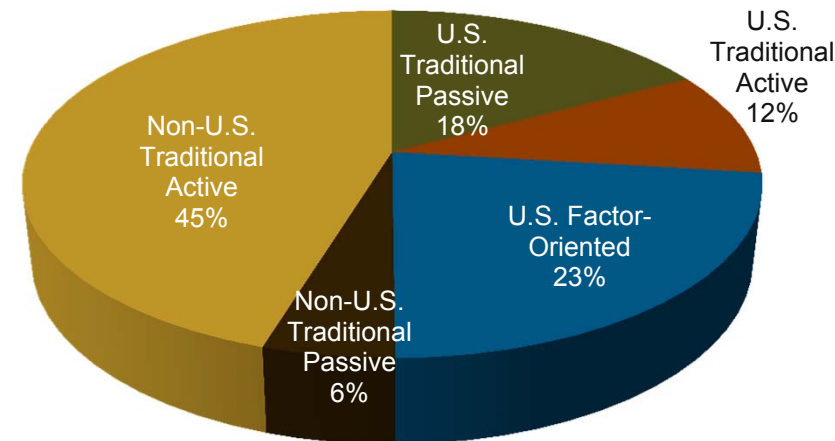
OPERF Public Equity

Public Market Allocation as of September 30, 2016

Active Share Analysis
 Ended September 30, 2016



Active/Passive Split

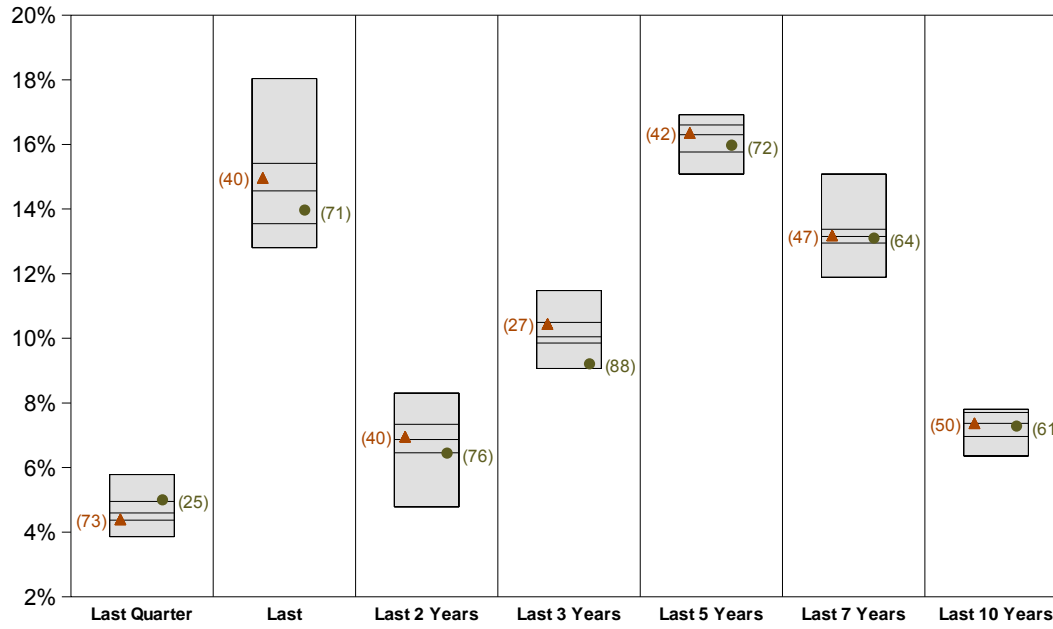


	Weight %	Index	Total Act Share	Non-Idx Act Share	Sector Act Share	Number Securities
Public Equity	100.00%	MSCI ACWI IMI	45.21%	3.57%	11.54%	10069

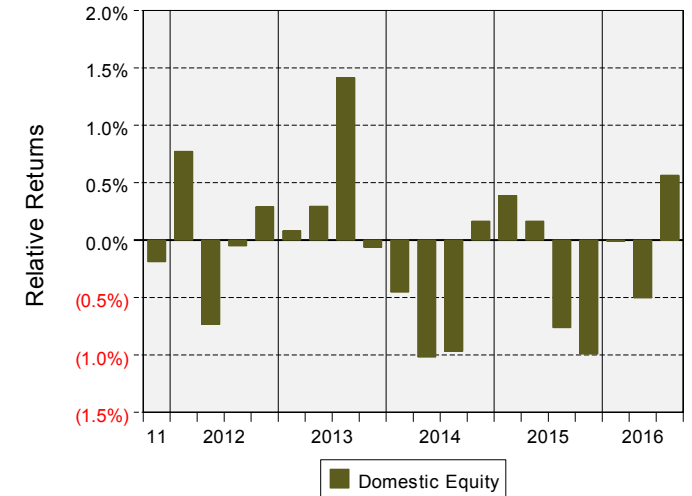
OPERF U.S. Equity

Performance Analysis as of September 30, 2016

Performance vs Lg Public >10 B DE (Gross)



Relative Return vs Russell 3000 Index

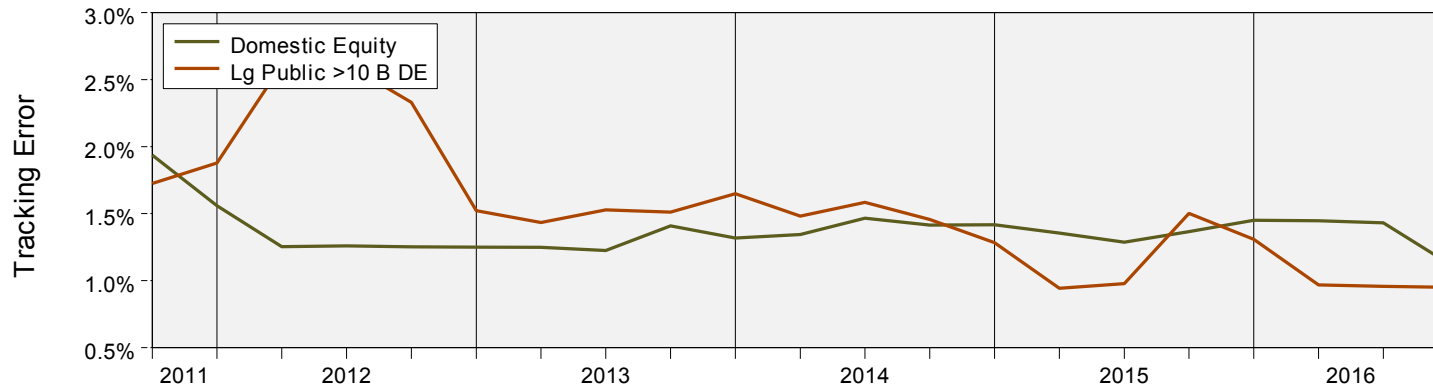


10th Percentile	5.78	18.04	8.30	11.48	16.92	15.09	7.80
25th Percentile	4.95	15.42	7.34	10.49	16.61	13.37	7.70
Median	4.60	14.56	6.87	10.05	16.30	13.15	7.37
75th Percentile	4.37	13.55	6.46	9.86	15.77	12.95	6.96
90th Percentile	3.86	12.81	4.78	9.07	15.09	11.89	6.36
Domestic Equity ●	4.96	13.93	6.41	9.17	15.94	13.06	7.25
Russell 3000 Index ▲	4.40	14.96	6.96	10.44	16.36	13.18	7.37

OPERF U.S. Equity

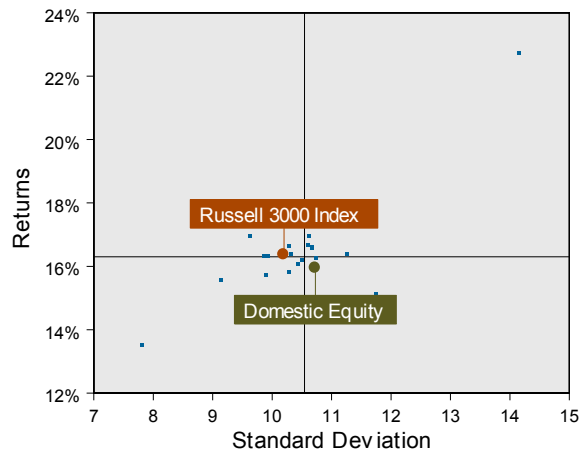
Risk Analysis as of September 30, 2016

Rolling 12 Quarter Tracking Error vs Russell 3000 Index

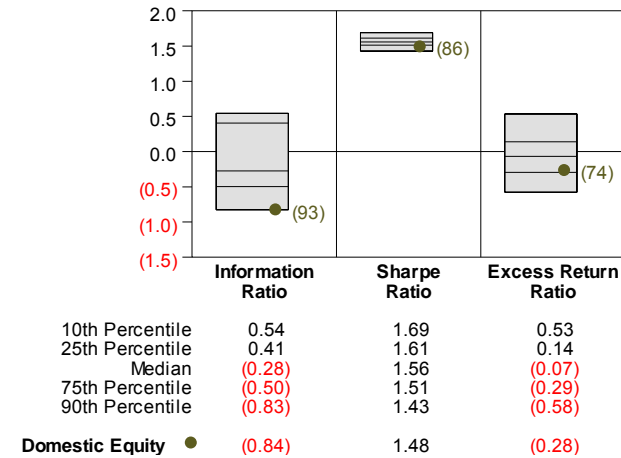


Risk Analysis vs CAI Public Funds: \$10B+ Domestic Equity (Gross)
Five Years Ended September 30, 2016

Lg Public >10 B DE (Gross)
Annualized Five Year Risk vs Return



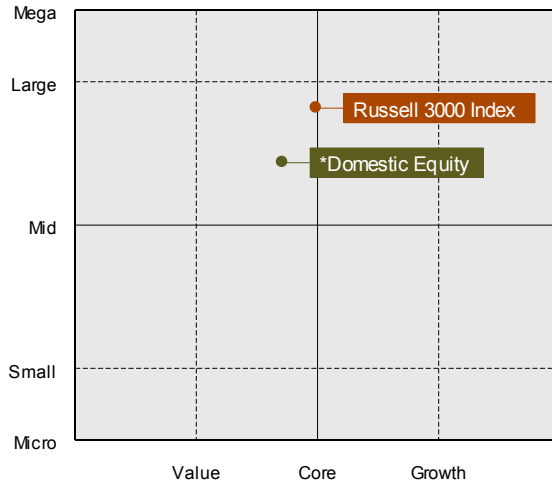
Risk Adjusted Return Measures vs Russell 3000 Index
Rankings Against CAI Public Funds: \$10B+ Domestic Equity (Gross)
Five Years Ended September 30, 2016



OPERF U.S. Equity

Characteristics as of September 30, 2016

Style Map vs Large Public Funds (>10B)
Holdings as of September 30, 2016

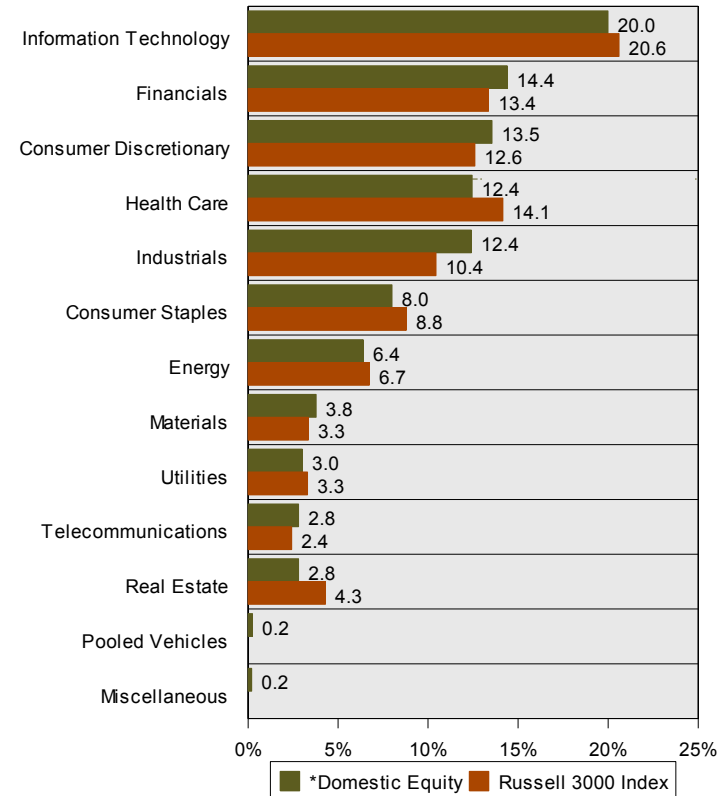


Style Exposure Matrix
Holdings as of September 30, 2016

	Value	Core	Growth	Total
Large	23.9% (95)	23.9% (103)	15.8% (98)	63.6% (296)
	24.3% (94)	29.2% (101)	20.2% (96)	73.8% (291)
Mid	7.1% (146)	7.8% (220)	7.0% (228)	22.0% (594)
	4.6% (143)	6.3% (217)	6.8% (225)	17.7% (585)
Small	3.8% (307)	4.2% (347)	2.3% (199)	10.3% (853)
	2.2% (346)	3.1% (459)	2.2% (365)	7.5% (1170)
Micro	1.6% (300)	1.9% (280)	0.6% (109)	4.1% (689)
	0.3% (303)	0.4% (377)	0.3% (198)	1.0% (878)
Total	36.4% (848)	37.9% (950)	25.8% (634)	100.0% (2432)
	31.5% (886)	39.0% (1154)	29.5% (884)	100.0% (2924)

- OPERF US Equity
- Russell 3000

Sector Allocation
September 30, 2016

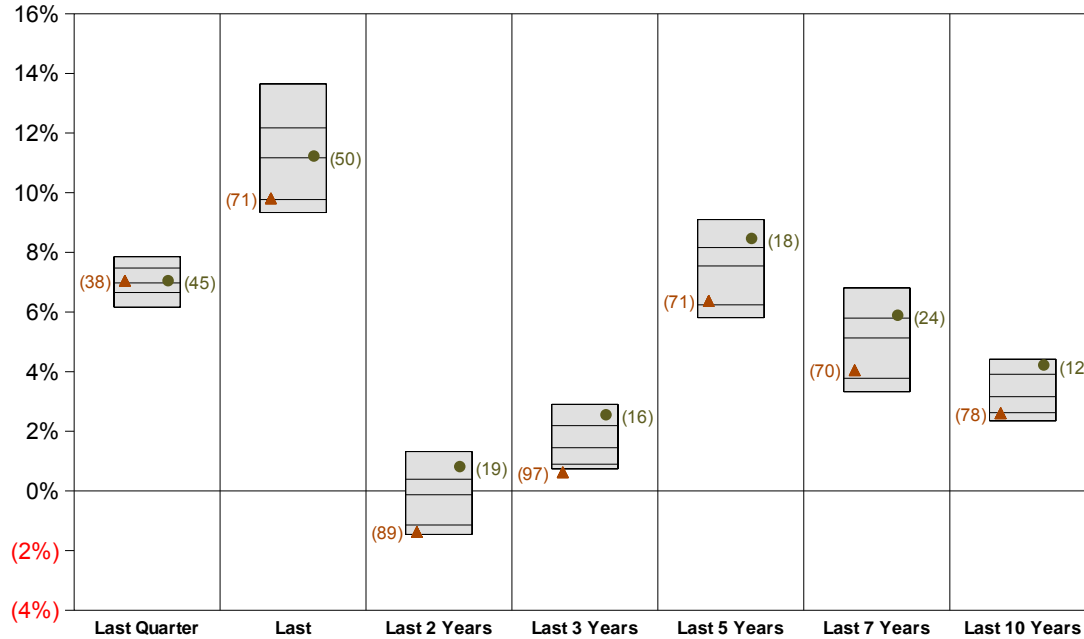


	Wtd. Median Mkt Cap	Price/Earn.	Price/Book	Forecasted Earn. Growth	Div yield	MSCI Combined Z-Score
Domestic Equity	33.27	15.98	2.27	10.96	2.00	-0.2
Russell 3000 Index	53.96	17.74	2.6	12.54	2.00	-0.02

OPERF Non-US Equity

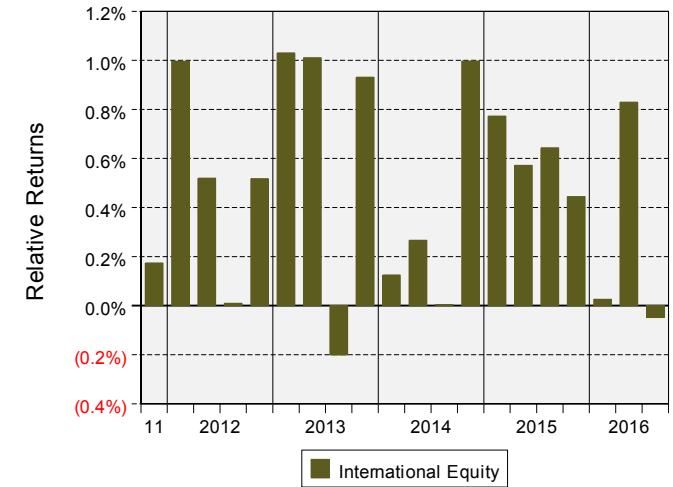
Performance Analysis as of September 30, 2016

Performance vs Lg Public >10 B IE (Gross)



10th Percentile	7.86	13.65	1.32	2.90	9.10	6.81	4.42	
25th Percentile	7.48	12.17	0.39	2.19	8.16	5.79	3.91	
Median	6.98	11.17	(0.13)	1.45	7.54	5.13	3.16	
75th Percentile	6.65	9.77	(1.14)	0.89	6.24	3.78	2.62	
90th Percentile	6.16	9.34	(1.46)	0.74	5.81	3.32	2.35	
International Equity	●	7.00	11.18	0.77	2.51	8.42	5.85	4.17
MSCI ACWI ex-IMI Index	▲	7.05	9.81	(1.37)	0.62	6.37	4.05	2.61

Relative Returns vs MSCI ACWI ex-US IMI Index

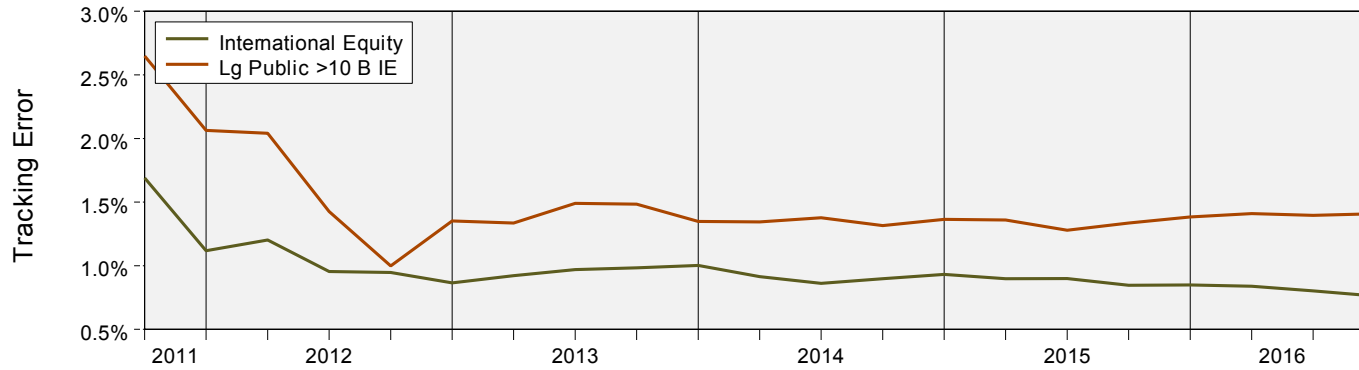


*The benchmark for the International Equity portfolio was the MSCI ACWI ex US Gross Index through May 31, 2008, and the MSCI ACWI ex US IMI Net Index thereafter. Index returns above are linked.

OPERF Non-US Equity

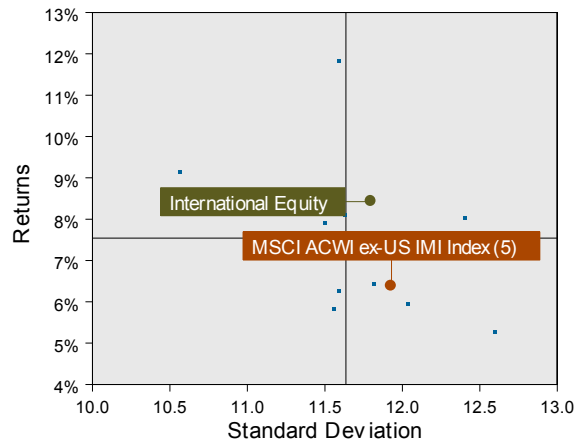
Risk Analysis as of September 30, 2016

Rolling 12 Quarter Tracking Error vs MSCI ACWI ex-US IMI Index*

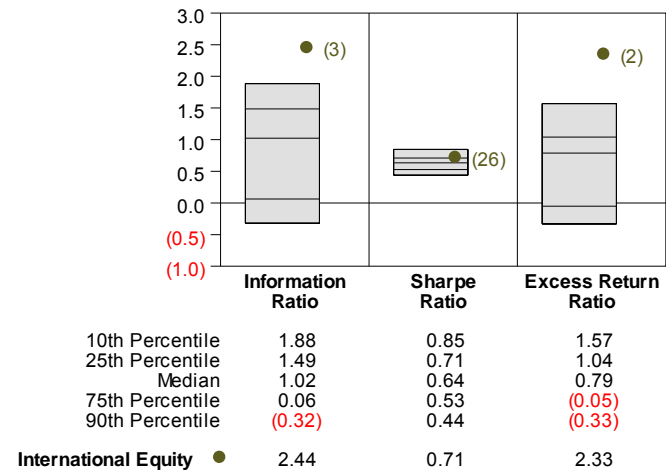


Risk Analysis vs CAI Public Funds: \$10B+ Intl Equity (Gross)
Five Years Ended September 30, 2016

Lg Public >10 B IE (Gross)
Annualized Five Year Risk vs Return



Risk Adjusted Return Measures vs MSCI ACWI ex-US IMI Index*
Rankings Against CAI Public Funds: \$10B+ Intl Equity (Gross)
Five Years Ended September 30, 2016

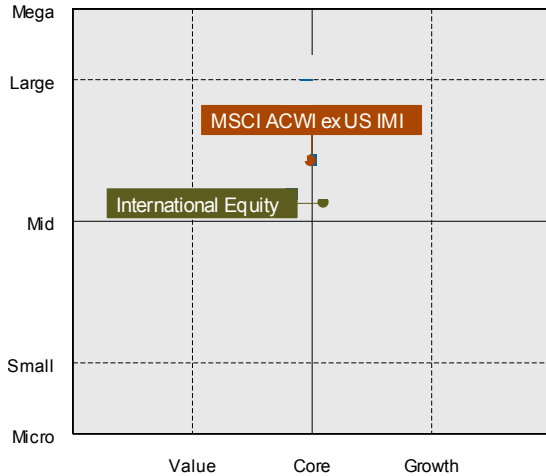


*The benchmark for the International Equity portfolio was the MSCI ACWI ex US Gross Index through May 31, 2008, and the MSCI ACWI ex US IMI Net Index thereafter. Index returns above are linked.

OPERF Non-US Equity

Characteristics as of September 30, 2016

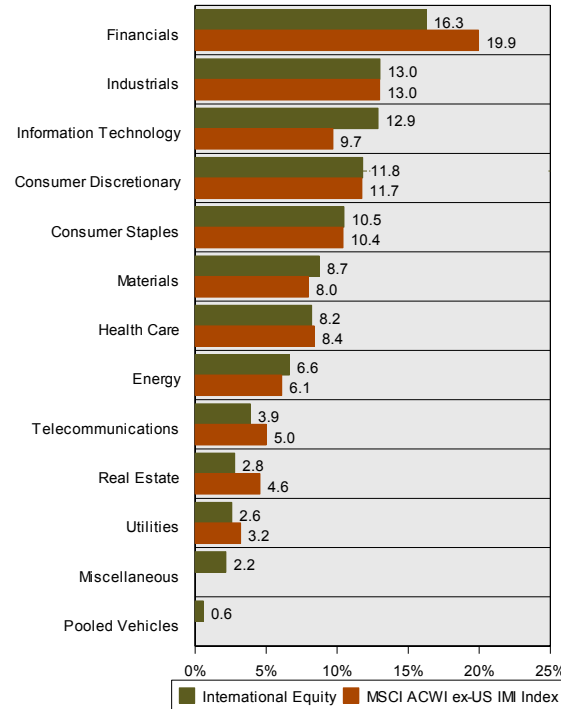
Style Map vs Lg Public >10 B IE Holdings as of September 30, 2016



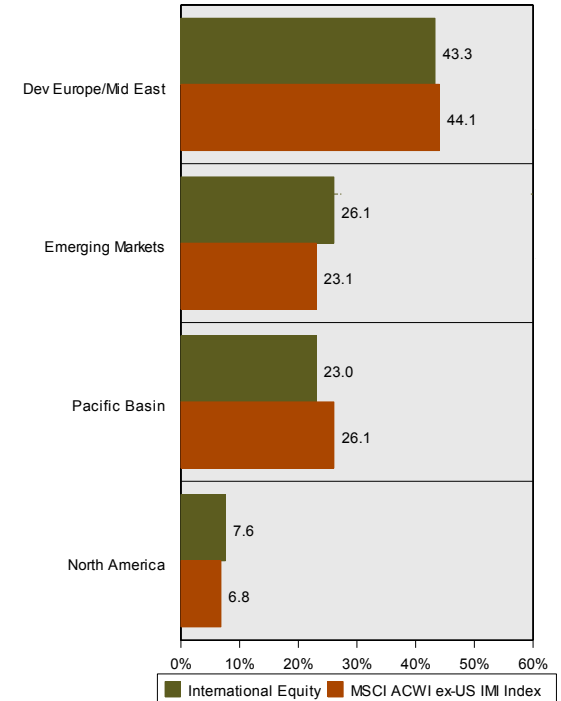
Style Exposure Matrix Holdings as of September 30, 2016

	Value	Core	Growth	Total
Large	15.5% (153) 20.8% (157)	13.8% (129) 14.7% (125)	24.3% (193) 24.2% (180)	53.6% (475) 59.7% (462)
Mid	6.9% (216) 6.2% (276)	9.0% (297) 8.1% (348)	11.7% (355) 10.1% (440)	27.5% (868) 24.4% (1064)
Small	4.8% (595) 4.2% (735)	4.8% (596) 4.5% (799)	4.7% (465) 4.0% (772)	14.3% (1656) 12.7% (2306)
Micro	1.8% (1938) 1.2% (886)	1.6% (1456) 1.1% (798)	1.1% (757) 0.8% (629)	4.5% (4151) 3.1% (2313)
Total	29.0% (2902) 32.4% (2054)	29.2% (2478) 28.4% (2070)	41.9% (1770) 39.1% (2021)	100.0% (7150) 100.0% (6145)

Sector Allocation September 30, 2016



Regional Allocation September 30, 2016



	Wtd. Median Mkt Cap	Price/Earn.	Price/Book	Forecasted Earn. Growth	Div yield	MSCI Combined Z-Score
International Equity	17.29	12.85	1.62	10.88	2.75	-0.12
MSCI ACWI ex-US IMI	20.63	14.24	1.55	10.06	2.96	-0.02

- International Equity
- MSCI ACWI ex-U.S. IMI

OPERF Total Fixed Income

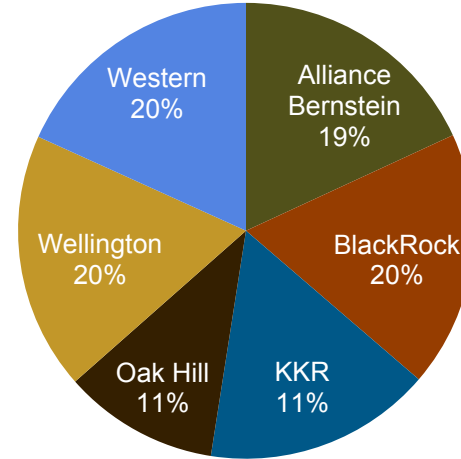
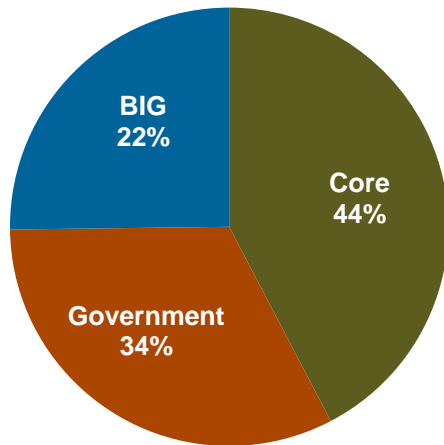
Allocations as of September 30, 2016

Allocation by Strategy

Managers	Assets (\$M)	% Allocation	% Target
Core	\$ 6,391,554	43.9%	46.0%
Government	\$ 4,983,688	34.2%	37.0%
BIG	\$ 3,199,203	22.0%	17.0%
Total	\$ 14,574,444	100.0%	100.0%

Allocation by Manager

Managers	Core	Government	BIG	Assets (\$M)	% Allocation
AllianceBernstein	\$ 1,597,234,459	\$ 1,234,351,650	-	\$ 2,831,586,109	19.4%
BlackRock	\$ 1,596,484,883	\$ 1,244,487,017	-	\$ 2,840,971,900	19.5%
Wellington	\$ 1,595,727,165	\$ 1,263,199,203	-	\$ 2,858,926,368	19.6%
Western Asset Mgmt	\$ 1,602,107,218	\$ 1,241,649,712	-	\$ 2,843,756,930	19.5%
KKR Asset Mgmt	-	-	\$ 1,553,451,743	\$ 1,553,451,743	10.7%
Oak Hill	-	-	\$ 1,645,751,381	\$ 1,645,751,381	11.3%
Total	\$ 6,391,553,725	\$ 4,983,687,582	\$ 3,199,203,124	\$ 14,574,444,431	100.0%

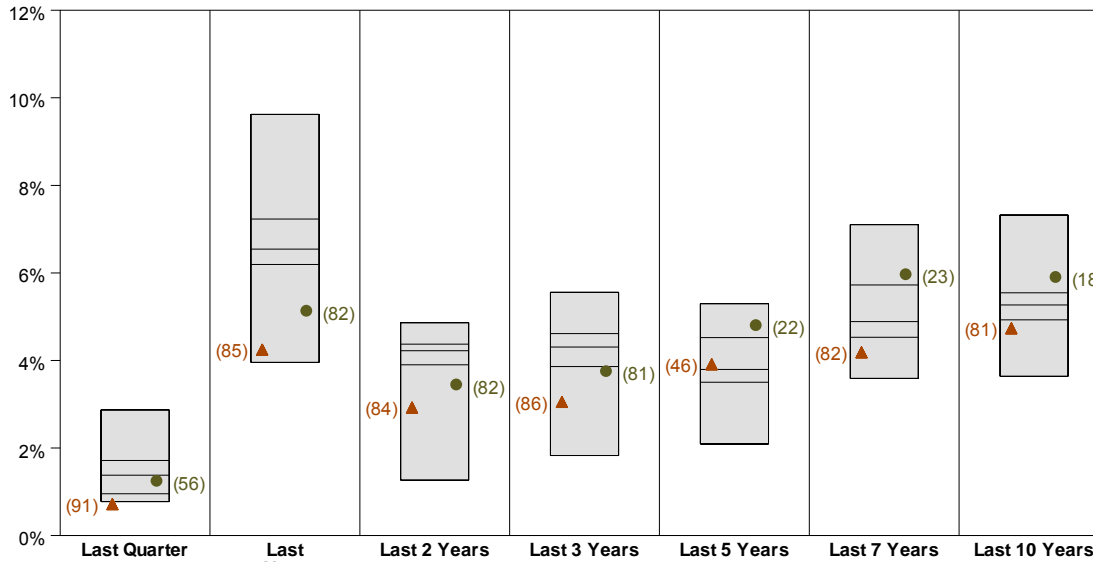


Percentages may not sum to 100% due to rounding

OPERF Total Fixed Income

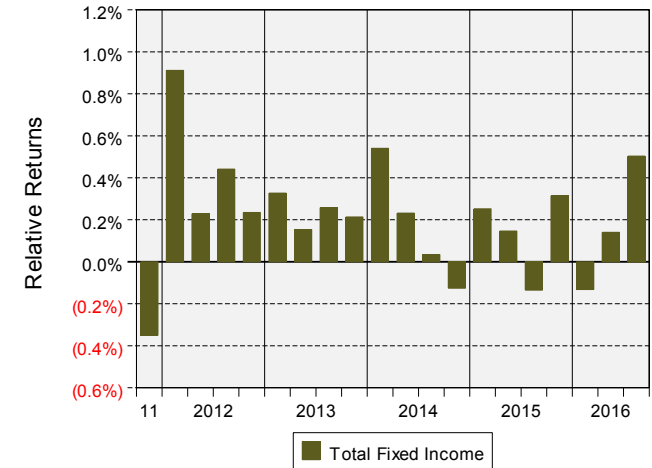
Performance Analysis as of September 30, 2016

Performance vs Public Fund 10+ B US FI (Gross)



	Last Quarter	Last Year	Last 2 Years	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years
10th Percentile	2.87	9.62	4.86	5.56	5.30	7.10	7.32
25th Percentile	1.72	7.23	4.37	4.61	4.52	5.73	5.55
Median	1.38	6.54	4.22	4.30	3.80	4.89	5.27
75th Percentile	0.96	6.19	3.90	3.86	3.50	4.53	4.93
90th Percentile	0.78	3.95	1.27	1.83	2.09	3.59	3.64
Total Fixed Income ●	1.22	5.11	3.42	3.73	4.78	5.94	5.88
OPERF Custom FI Benchmark* ▲	0.72	4.25	2.93	3.05	3.91	4.19	4.74

Relative Returns vs OPERF Custom FI Benchmark*

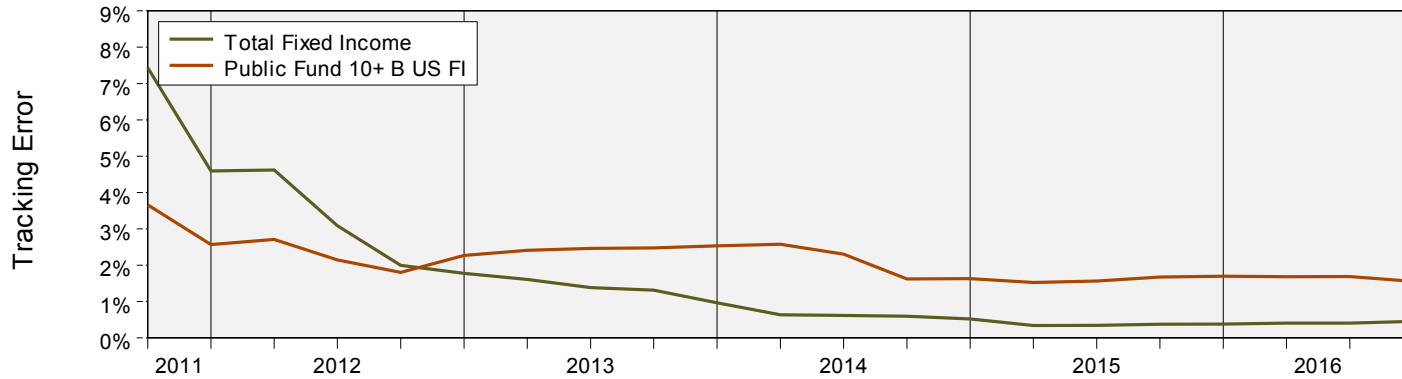


*Prior to February 28, 2011, index is Oregon Custom FI 90/10 Benchmark (90% BC US Universal Index and 10% SSBI Non-US World Gov't Bond Hedged Index). From March 1, 2011 to December 31, 2013, index is Oregon Custom FI Benchmark (60% BC US Universal Index, 20% S&P/LSTA Leveraged Loan Index, 10% JPM EMBI Global Index, and 10% BofA ML High Yield Master II Index). From January 1, 2014 to Current, index is Oregon Custom FI Benchmark (40% Barclays Capital U.S. Aggregate Bond, 40% Barclays Capital U.S. 1-3 Govt/Credit Bond Index, 15% S&P/LSTA Leveraged Loan Index, and 5% BofA ML High Yield Master II Index). From March 1, 2016 to Present, index is 46% Barclays Aggregate Bond, 37% Barclays Treasury, 4% BofAML High Yield Master II, and 13% S&P/LSTA.

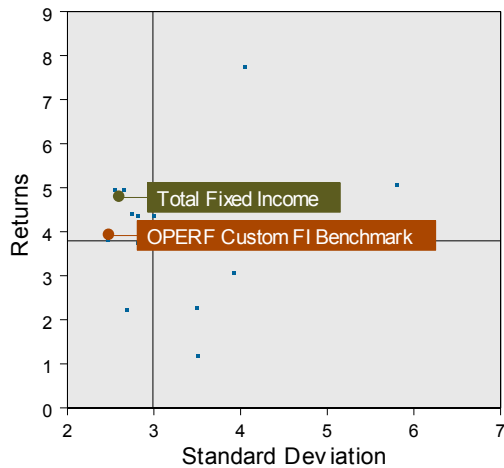
OPERF Total Fixed Income

Risk Analysis as of September 30, 2016

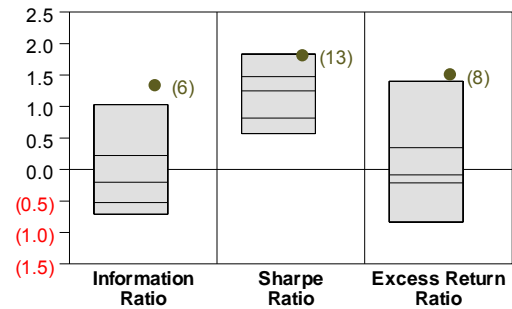
Rolling 12 Quarter Tracking Error vs OPERF Custom FI Benchmark*



Risk Analysis vs Public Funds \$10B+ US FI (Gross)
Ten Years Ended September 30, 2016



Risk Statistics Rankings vs Policy Target
Rankings Against Public Funds \$10B+ US FI (Gross)
Five Years Ended September 30, 2016



	Information Ratio	Sharpe Ratio	Excess Return Ratio
10th Percentile	1.03	1.83	1.40
25th Percentile	0.22	1.47	0.35
Median	(0.20)	1.25	(0.08)
75th Percentile	(0.53)	0.82	(0.21)
90th Percentile	(0.71)	0.57	(0.83)

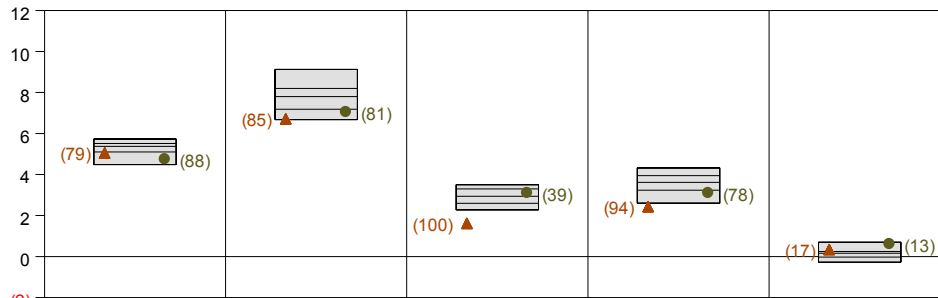
Total Fixed Income ● 1.32 1.79 1.49

*Oregon's custom benchmark was changed on March 1, 2016 and now represents 46% Barclays Aggregate Bond, 37% Barclays Treasury, 4% BofAML High Yield Master II, and 13% S&P/LSTA.

OPERF Total Fixed Income

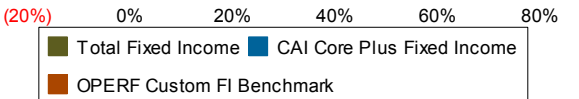
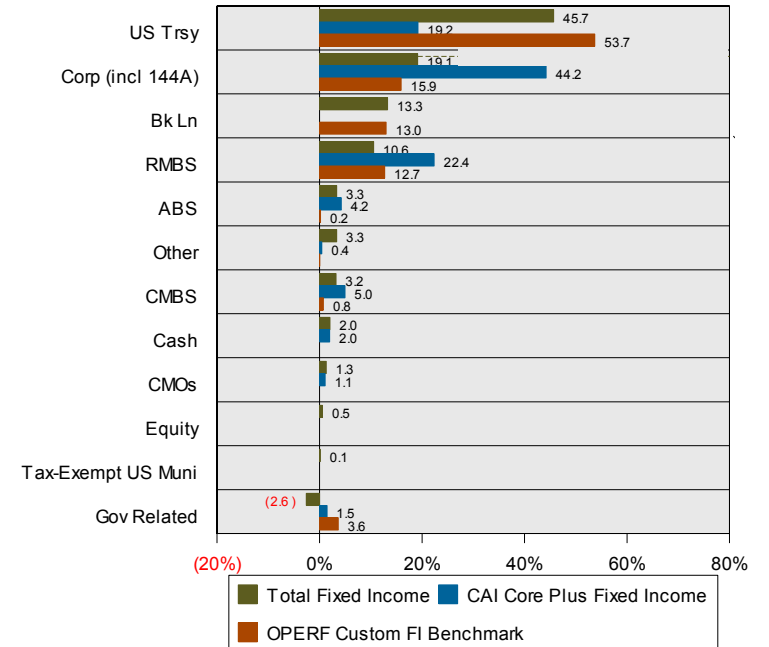
Characteristics as of September 30, 2016

Fixed Income Portfolio Characteristics Rankings Against CAI Core Plus Fixed Income as of September 30, 2016



	Duration	Average Life	Effective Yield	Coupon Rate	OA Convexity
10th Percentile	5.73	9.13	3.50	4.32	0.70
25th Percentile	5.52	8.20	3.30	3.94	0.25
Median	5.37	7.80	2.94	3.62	0.16
75th Percentile	5.10	7.18	2.59	3.24	(0.03)
90th Percentile	4.49	6.68	2.27	2.61	(0.27)
Total Fixed Income ●	4.71	7.01	3.07	3.07	0.58
OPERF Custom FI Benchmark ▲	5.05	6.72	1.62	2.44	0.34

Sector Allocation September 30, 2016



	Quality Ratings
Total Fixed Income	A
OPERF Total FI Bench	A+

Oregon's custom benchmark was changed on March 1, 2016 and now represents 46% Barclays Aggregate Bond, 37% Barclays Treasury, 4% BofAML High Yield Master II, and 13% S&P/LSTA.



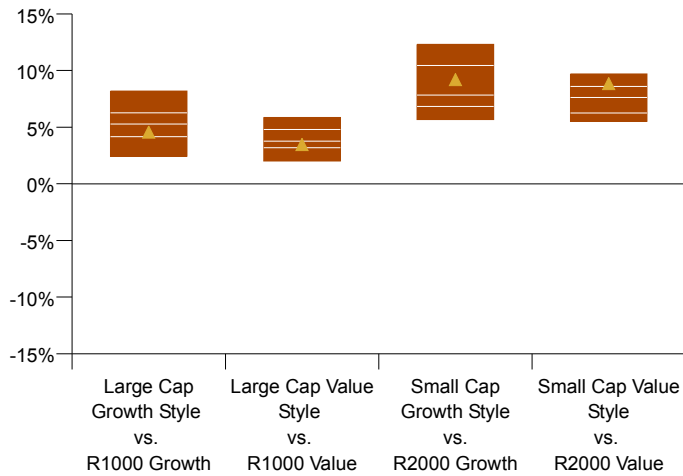
Appendix

US Equity

Third Quarter 2016

- The US economy remains slow but steady. The second quarter GDP was revised modestly higher to +1.4%, boosted by robust consumer spending. Fed policymakers now expect growth for all of 2016 to be 1.8%, down from the June expectation of 2.0%.
- The job market remained steady, with job growth averaging 192,000 in the third quarter. Unemployment ticked up slightly to 5.0%, given the increase in labor force. Wages showed signs of improvement, rising 2.6% over the last twelve months; up from August's 2.4% but down slightly from July's 2.7% which had been the highest in seven years.
- Inflation remains tame. For the trailing 12 months ended June, headline CPI was +1.5%, and Core CPI (excluding food and energy) registered at +2.2%.

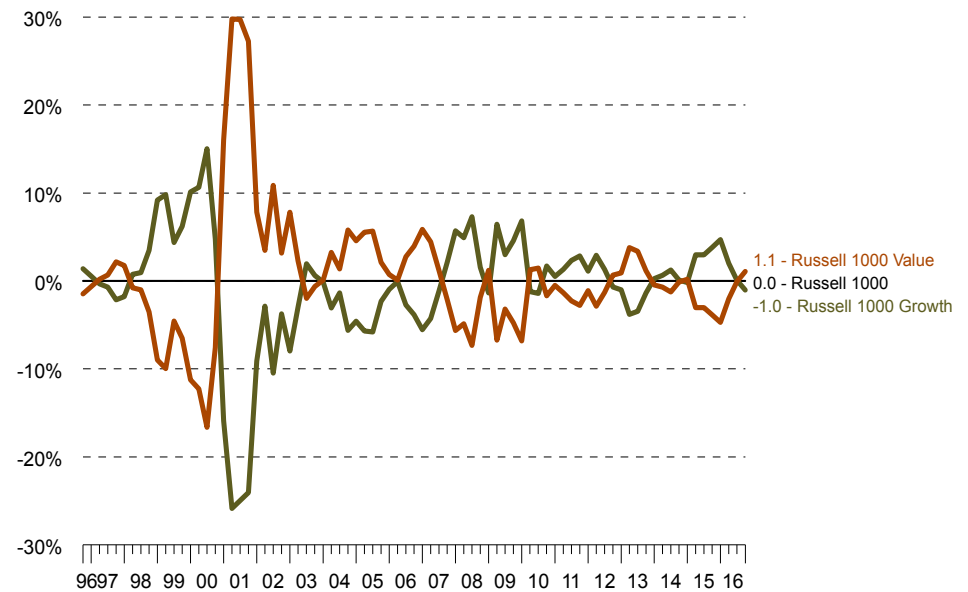
Callan Style Group Quarterly Returns



10th Percentile	8.20	5.87	12.32	9.71
25th Percentile	6.29	4.81	10.46	8.60
Median	5.28	3.78	7.85	7.64
75th Percentile	4.18	3.20	6.83	6.26
90th Percentile	2.45	2.03	5.69	5.52
Benchmark ▲	4.58	3.48	9.22	8.87

Source: Callan, Russell Investment Group

Rolling One-Year Relative Returns (versus Russell:1000 Index)

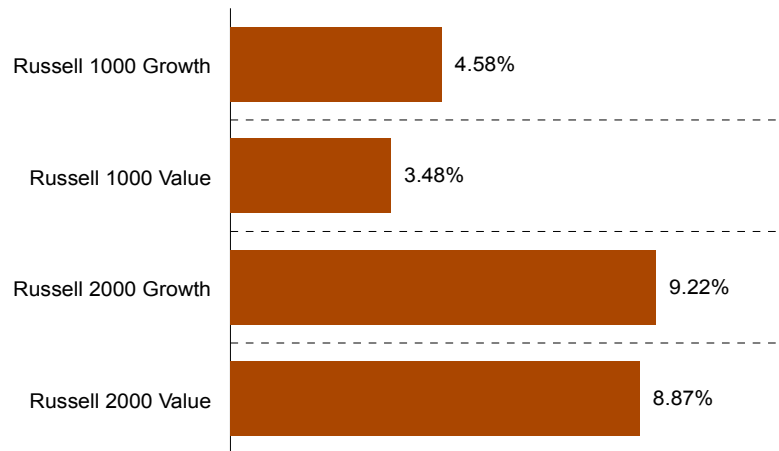


Source: Russell Investment Group

US Equity

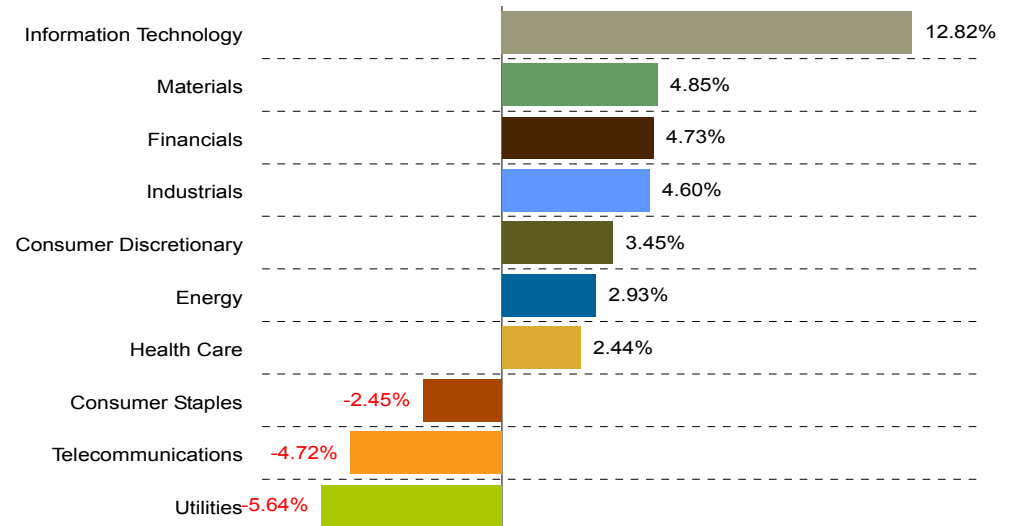
Third Quarter 2016

Quarterly Performance By Capitalization and Style



Source: Russell Investment Group

Quarterly Returns (Russell 3000) By Sector



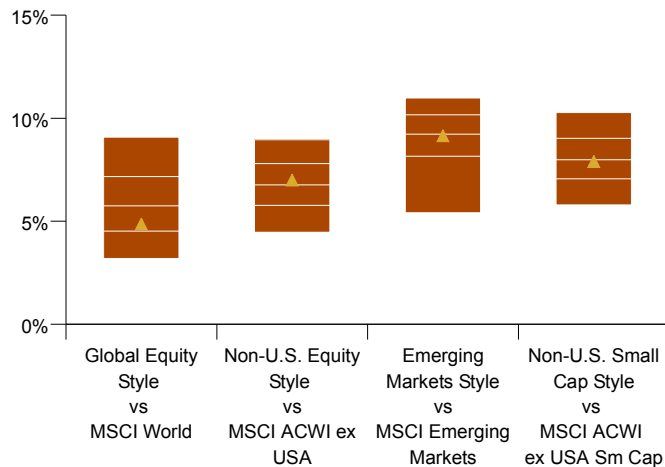
- Reduced fears of slowing global growth, particularly in China, optimism about the U.S. economy, and further delays in rate hike contributed to a rebound in domestic equity in the 3rd quarter.
- The Russell 3000 Index rose every month of the third quarter, ending up 4.4%. Small cap stocks led other size capitalizations by a large margin (Russell 2000: +9.1%, Russell Mid Cap: +4.5%). After two strong quarters, Value underperformed Growth across market capitalizations. The dispersion in returns was narrow with the largest difference seen in large caps as the Russell 1000 Growth outperformed its Value counterpart by 1.1%.
- The excess return of growth over value was largely attributable to sector performance. The largest growth sector, Technology (+12.8%) posted the strongest return among all sectors. Interest rate-sensitive sectors such as Utilities (-5.6%) and Telecom (-4.7%) were the worst performing sectors, hurt by the prospect of rising short-term rates.

Non-US Equity

Third Quarter 2016

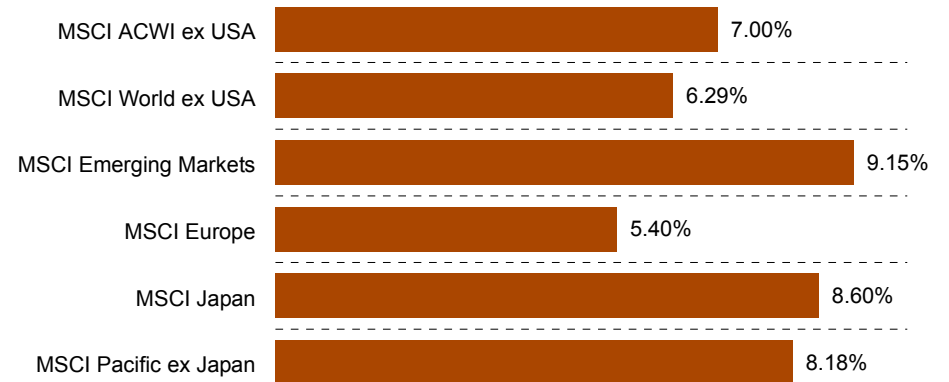
- The MSCI ACWI ex USA (+7.0%) rallied, supported by the quarter's risk-on theme from dwindling Brexit anxieties and exceptionally low volatility, a result of accommodative central bank policies and steady economic growth.
- Emerging Markets (+9.2%) were the top performers, besting its developed counterparts in the MSCI World ex USA (+6.3%).
- Southeast Asia and the Pacific enjoyed a buoyant quarter as well. Japanese equities propelled 8.6% due to new central bank policies and a fresh stimulus package.

Callan Style Group Quarterly Returns



10th Percentile	9.08	8.96	10.98	10.28
25th Percentile	7.17	7.80	10.17	9.03
Median	5.75	6.77	9.23	7.99
75th Percentile	4.53	5.77	8.16	7.06
90th Percentile	3.20	4.47	5.42	5.79
Benchmark ▲	4.87	7.00	9.15	7.91

Regional Quarterly Performance (U.S. Dollar)



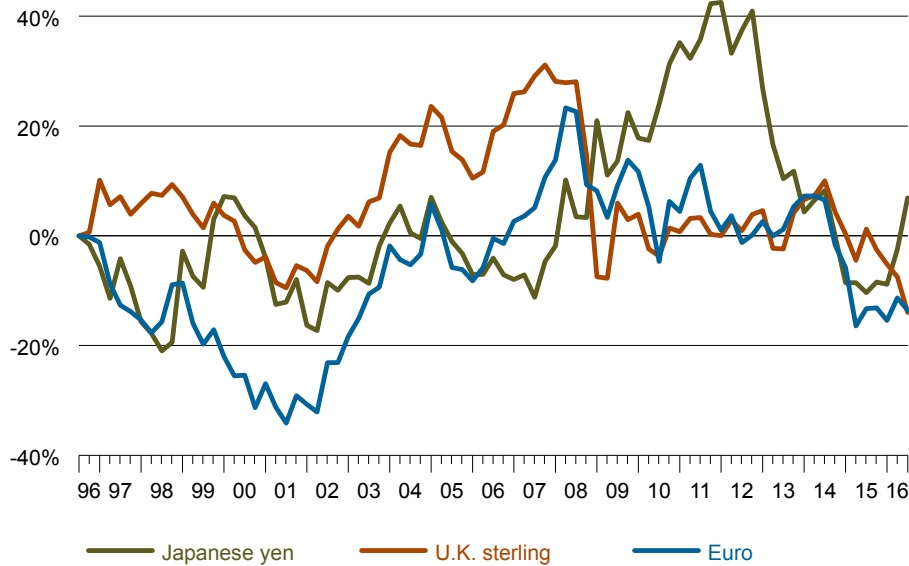
Source: MSCI

Sources: Callan, MSCI

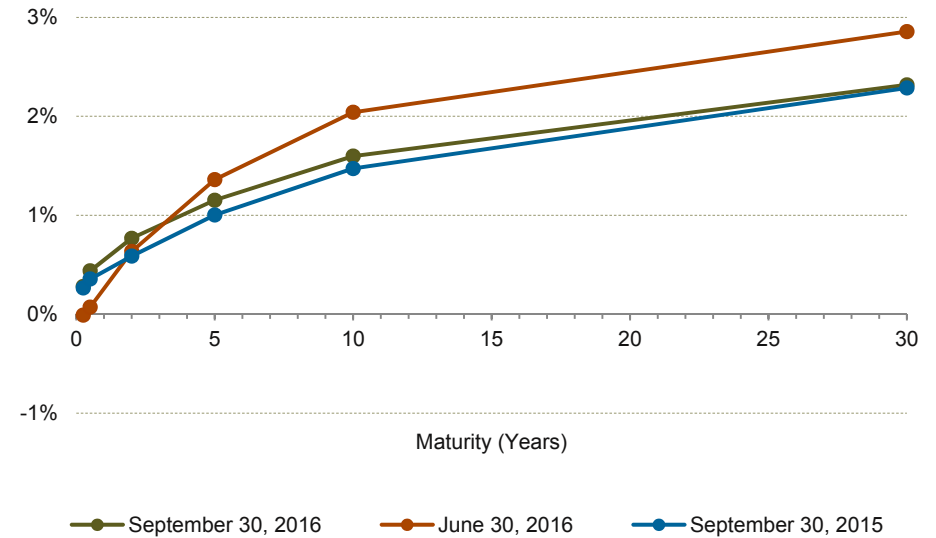
Currency and Yield Curve

Third Quarter 2016

Major Currencies' Cumulative Returns (vs. U.S. Dollar)



U.S. Treasury Yield Curves



Source: Bloomberg

*Euro returns from 1Q99. German mark prior to 1Q99.
Source: MSCI

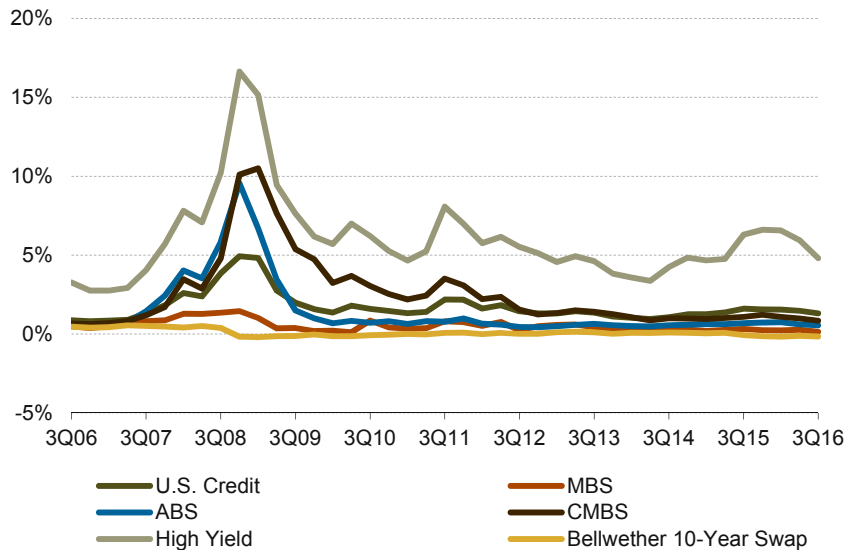
- Currency fluctuations were relatively muted over the course of the quarter; the yen and euro both gained just over 1% versus the dollar while the pound lost nearly 3%.
- Yields varied across the maturity spectrum during the quarter. Credit spreads tightened during the quarter and yields inched toward historic lows.

Fixed Income

Third Quarter 2016

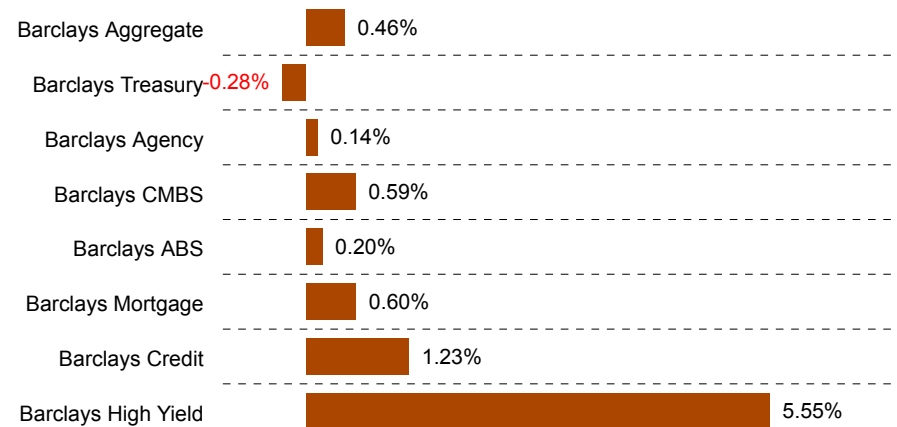
- The Bloomberg Barclays US Aggregate Index posted incremental gains, eking out 46 basis points.
- Credit spreads tightened during the quarter and yields inched toward historic lows. High-yield corporates were the strongest performer with a 5.6% jump. Despite record issuances in August, the credit sector gained 1.2% for the quarter and outperformed MBS (+0.6%) and CMBS (+0.6%).

Effective Yield Over Treasuries



Source: Barclays

Absolute Returns for Quarter ended September 30, 2016



Source: Barclays

TAB 7 – Currency Project Introduction

OPERF

OPERF Currency Project Introduction

Purpose

Provide the Oregon Investment Council (OIC) with an introduction to the Oregon Public Employees Retirement Fund (OPERF) currency project and discuss the merits of a strategic currency management policy.

Background

OIC Investment Belief 1-B states: "The OIC has authority to set and monitor portfolio risk. Both short-term and long-term risks are critical."

Currency is a risk exposure. Currently, the OIC does not have a currency risk management policy nor does the investment division of the Oregon State Treasury (OST) have a currency risk management program. As part of its annual engagement plan, OST's Internal Audit Services group has been working with Karl Cheng to both evaluate foreign currency risks to OST-managed portfolios and propose potential risk-mitigating currency management solutions.

Discussion

Why does currency risk matter? Like many other public pension funds, OPERF has a sizable foreign investment portfolio. Approximately 31% of OPERF's total portfolio (both public and private market assets) is invested internationally. Publically-traded, non-dollar denominated securities make up 18% of OPERF's total portfolio.

To illustrate the impact of foreign currency exposures on OPERF, a 10% U.S. dollar move changes OPERF's total return by 3.1%:

$$31\% \text{ Non-USD Currency Exposure} \times 10\% \text{ Move in USD} = 3.1\% \text{ impact on OPERF Total Return.}$$

As a U.S.-based investor, OPERF must pay its pension liabilities in U.S. dollars, yet almost one-third of OPERF's assets are denominated in foreign currencies. When the dollar depreciates, OPERF profits from the increased value of its foreign assets' currency exposure. Conversely, when the dollar appreciates, the value of OPERF's foreign assets will decline due to unfavorable exchange rates unless OPERF has some sort of protection from currency risk.

Historically, as shown below, the value of the U.S. dollar in foreign currency markets has been both cyclical and volatile:



For example, in fiscal year 2015, the dollar appreciated roughly 20% relative to a basket of currencies comprising six U.S. trade partners resulting in exchange rate losses for U.S. investors. In fact, for U.S. investors, a broad index of foreign stocks was down 5% in FY2015, even though in local (i.e., non-U.S.) currency terms that same index was actually up close to 10%. Dollar appreciation in FY2015 caused a negative exchange rate impact that significantly detracted from U.S. investors' returns on foreign asset holdings.

Since the Great Financial Crisis, central banks have been very active, and their policy interventions have dominated global currency markets. In today's slow-growth and low-return world, many countries use exchange rate depreciation as a monetary policy tool. Moreover, economic conditions across countries diverge significantly, so managing foreign currency risks and exposures has become increasingly important for investors.

Over the last several months, OST staff conducted broad investigations and related empirical analyses relative to OPERF's foreign currency exposure and potential currency management solutions. This process also included a survey of external investment managers and discussions with consultants, peer funds, an index provider, and currency management firms. The primary findings from this research are as follows:

- Unmanaged currency exposure is a source of uncompensated risk; and
- Currency fluctuations contribute meaningfully to OPERF's total risk.

Staff Recommendation

None, information only.



OPERF Currency Project Introduction

December 7, 2016

Agenda

- I. Introduction
- II. Investment Beliefs
- III. Why Currency Risk Matters
- IV. Empirical Evidence
- V. Summary and Q&A

Appendix 1: Foreign Equity Investing & Currency 101

Appendix 2: Stock Example – Siemens AG

Appendix 3: Major Currency Price History

Appendix 4: Recent U.S. Dollar Price History

Appendix 5: U.S. Dollar Price History Since Independence

Introduction

Status:

OPERF has no currency risk management policy or program.

Evaluation process:

- Empirical research and analysis
- OPERF foreign currency survey
- Macro economic and currency market assessment
- Broad discussions with consultants, peer funds, and index provider
- Review hedging strategies with currency management firms

Findings:

- Unmanaged currency exposure is a source of uncompensated risk.
- Currency fluctuations contribute meaningfully to OPERF's total risk.

Investment Beliefs

I. The OIC Sets Policy and is Ultimately Responsible for the Investment Program

- A. The OIC is a policy-setting council that largely delegates investment management activities to the OST and qualified external fiduciaries.
- B. The OIC has authority to set and monitor portfolio risk. Both short-term and long-term risks are critical.
 - The OIC must weigh the short-term risk of principal loss against the long-term risk of failing to meet return expectations.

Currency Risk

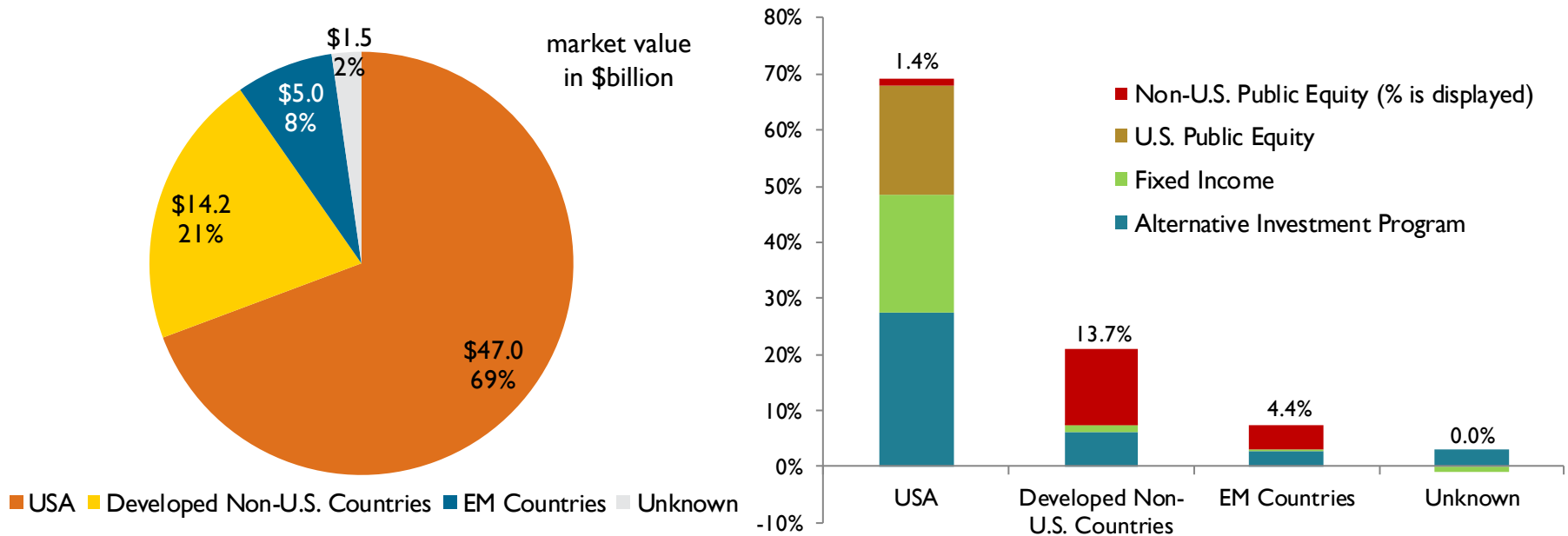
- Modern Portfolio Theory suggests optimal currency allocation should maximize a portfolio's expected risk-adjusted returns (i.e., increase return or reduce risk).
- Our empirical research spanning more than four decades (1970 to 2016) shows:
 - Currency has no meaningful long-term expected return;
 - Currency tends to increase portfolio risk;
 - Currency's historical maximum loss from a peak to a trough can reach -40%; and
 - Currency tends to be pro-cyclical, depreciating in stressed environments and appreciating in good times.



Why Currency Risk Matters

OPERF Country Exposure

- Approximately 31% of OPERF's total portfolio is invested in foreign countries.
- Non-U.S. Public Equity securities make up 18% of OPERF's total portfolio.



Note: market value data for public equity, fixed income, and a portion of private market portfolios is as of 9/30/2016; data for Alternative Investment Program is as of 6/30/2016.

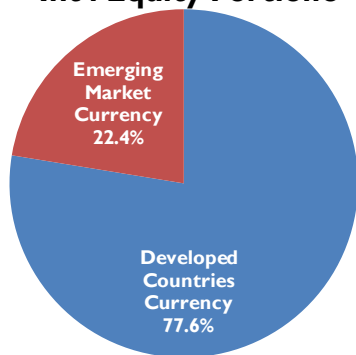
Source: State Street, BlackRock Aladdin, TorreyCove, OST Staff Calculation

OPERF's FX Exposure in Int'l Public Equity

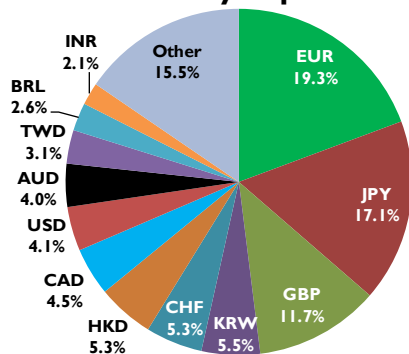
Asset Allocation and Currency Exposure

Risk Factor Decomposition

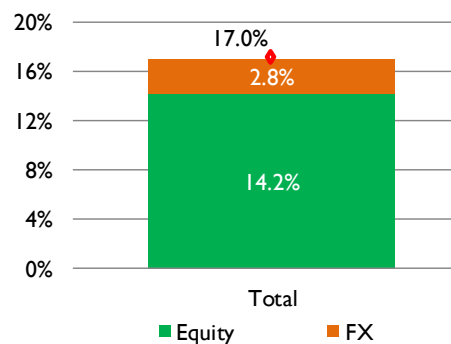
Int'l Equity Portfolio



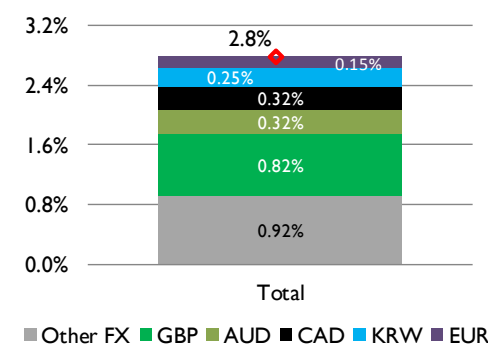
Currency Exposure



Int'l Equity Portfolio



FX Risk Factor

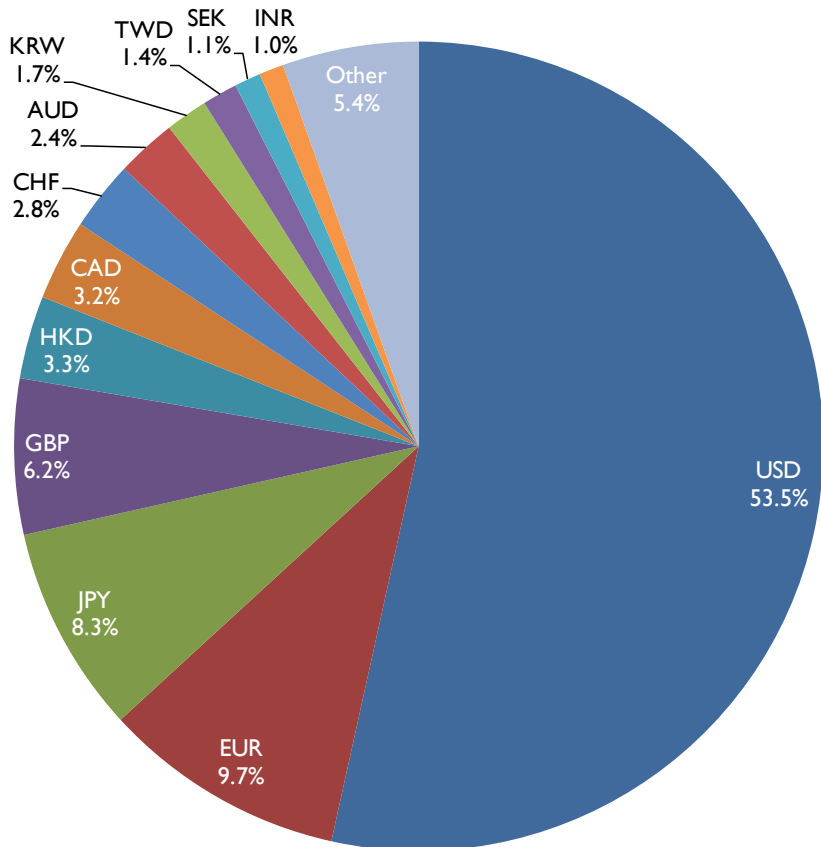


As of 9/30/2016	Market Value in \$Bil	% of OPERF	% of Total Public Equity	FX Risk	Portfolio Total Risk	FX Risk % of Port Risk
Public Equity	\$26.4	38%	100%	1.0%	15.1%	6.5%
International Equity	\$12.4	18%	47%	2.8%	17.0%	16.4%
Global Equity	\$0.8	1%	3%	1.1%	18.0%	5.8%
Total OPERF	\$70.0	100%		> 0.6%	11.6%	> 4.9%

Source: BlackRock, State Street

Global Equity Index Currency Exposure

**MSCI All Country World Investable Market Index
(MSCI ACWI IMI Index)**



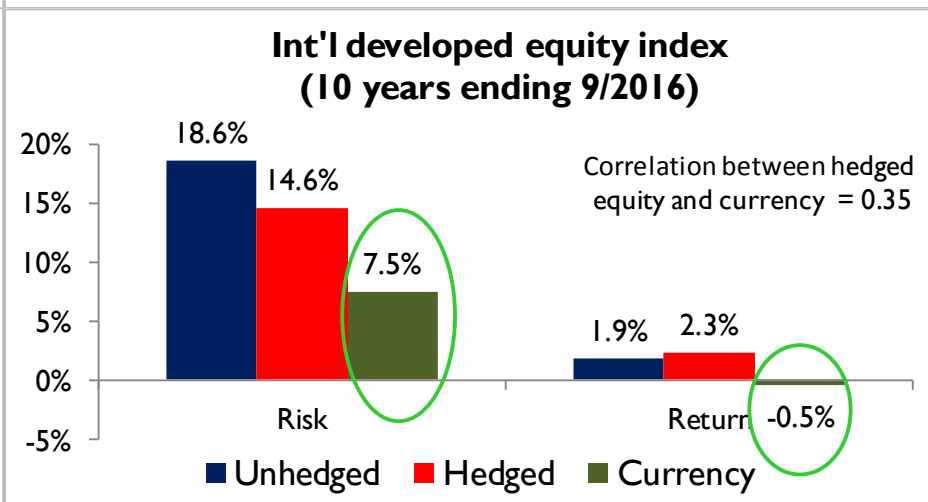
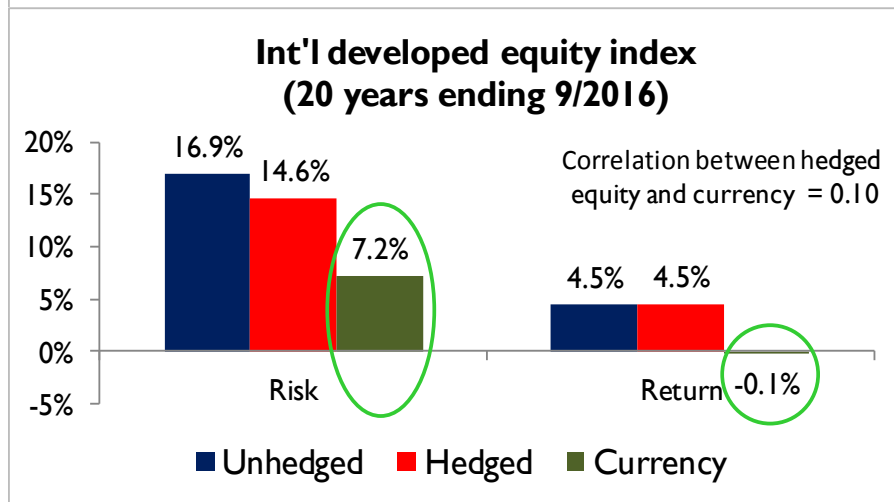
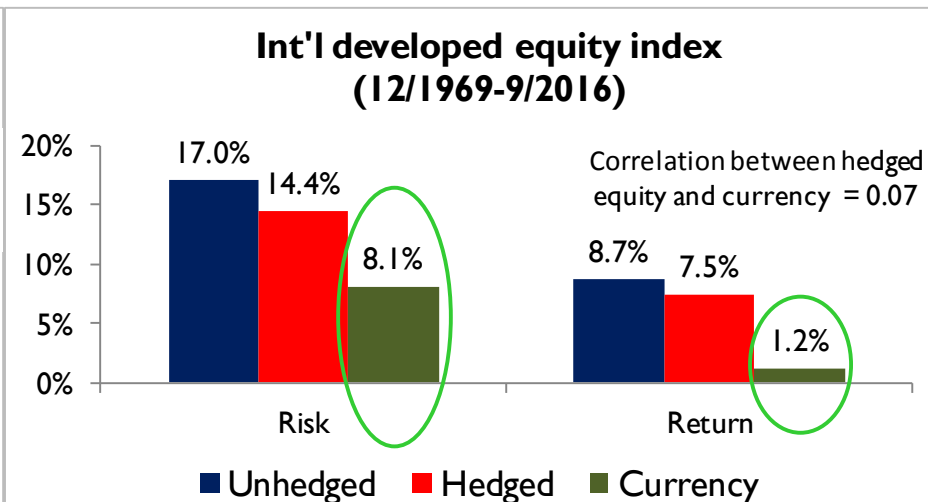
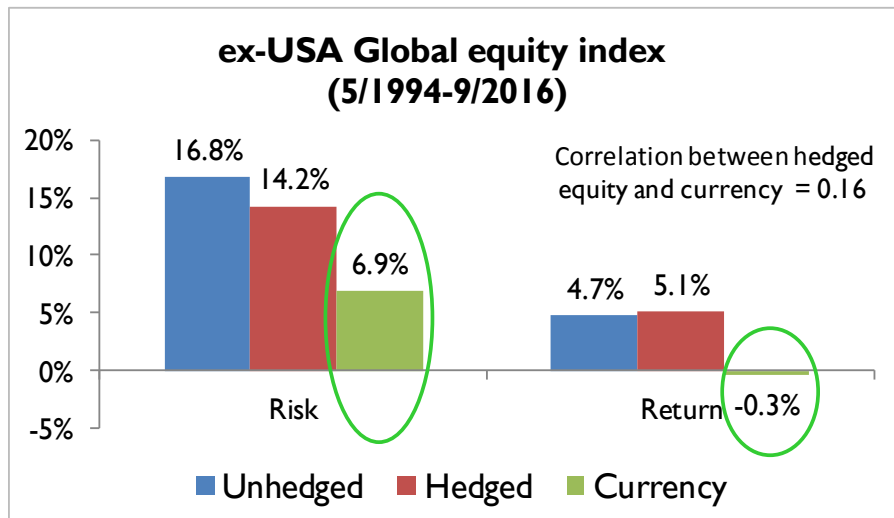
As of Sept 30, 2016

1	US Dollar (USD)	53.5%
2	Euro (EUR)	9.7%
3	Japanese Yen (JPY)	8.3%
4	British Pound (GBP)	6.2%
5	Hong Kong Dollar (HKD)	3.3%
6	Canadian Dollar (CAD)	3.2%
7	Swiss Franc (CHF)	2.8%
8	Australian Dollar (AUD)	2.4%
9	South Korean Won (KRW)	1.7%
10	Taiwan Dollar (TWD)	1.4%
11	Swedish Krona (SEK)	1.1%
12	Indian Rupee (INR)	1.0%
22	Other Currencies	5.4%
		100.0%

■ USD ■ EUR ■ JPY ■ GBP ■ HKD ■ CAD ■ CHF ■ AUD ■ KRW ■ TWD ■ SEK ■ INR ■ Other

Source: BlackRock Aladdin

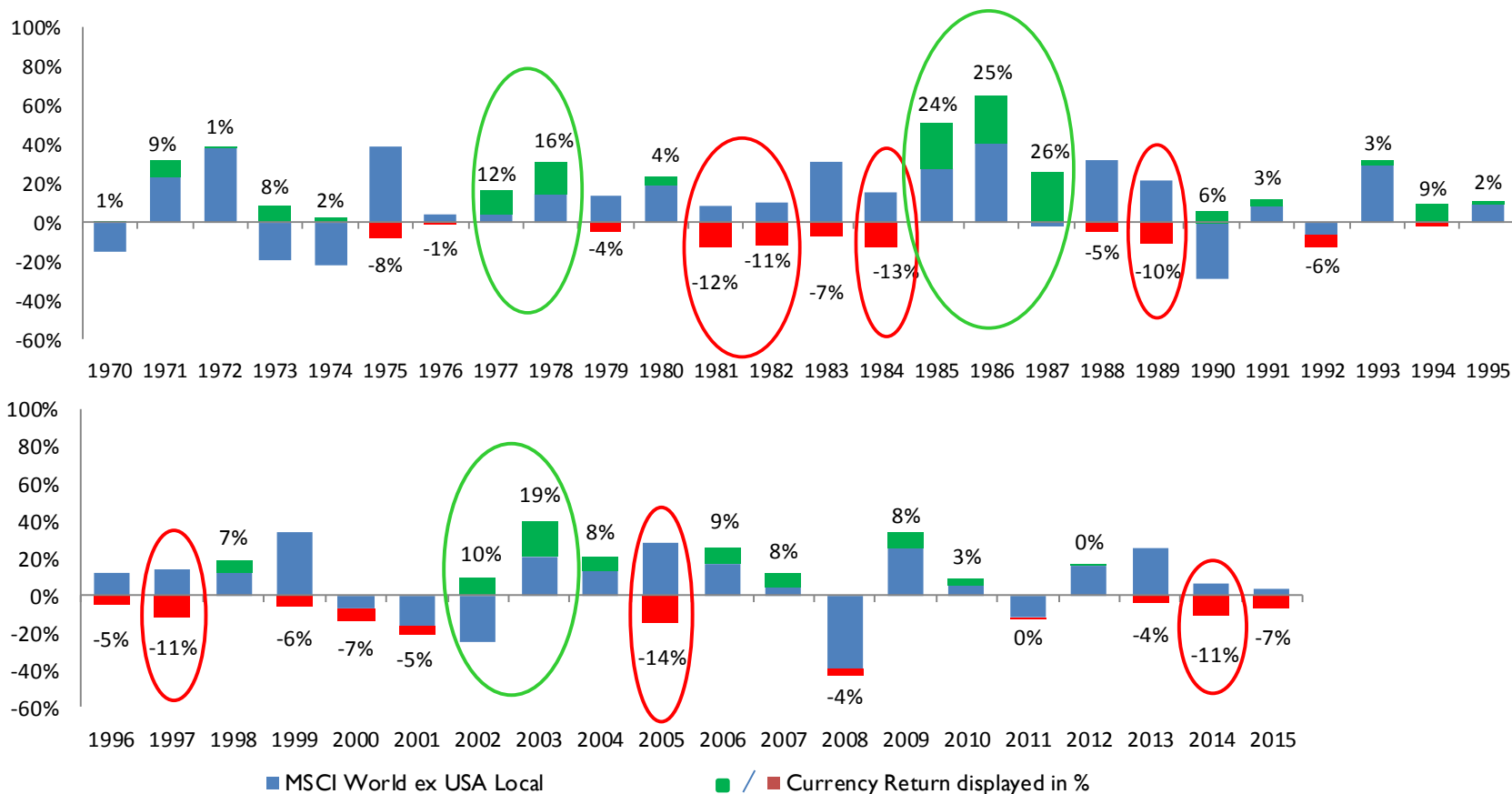
Uncompensated Currency Risk



Source: OST Staff Calculation, MSCI

Single Year Currency Impacts (1970 - 2015)

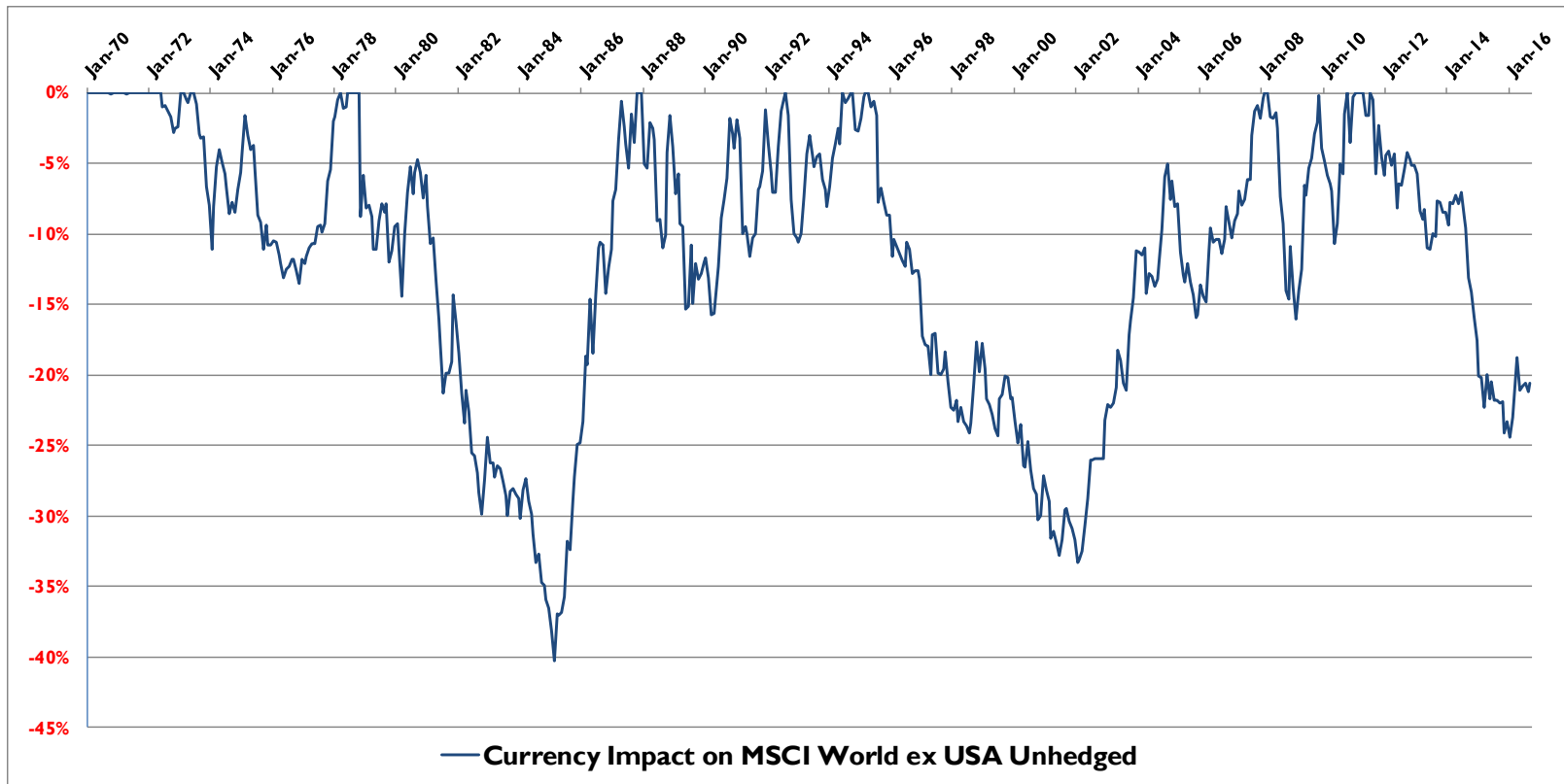
- Long-term expected return from currency is small.
- But the currency impact in any one year can be substantial.



Source: MSCI, OST staff calculation

Drawdown

- Currency impact on MSCI World ex-U.S. indices is pro-cyclical during stressed environments (e.g., 1998, 2001, 2008, 2014-2015).
- Currency's historical maximum loss from a peak to a trough is -40%, which occurred in February 1985.

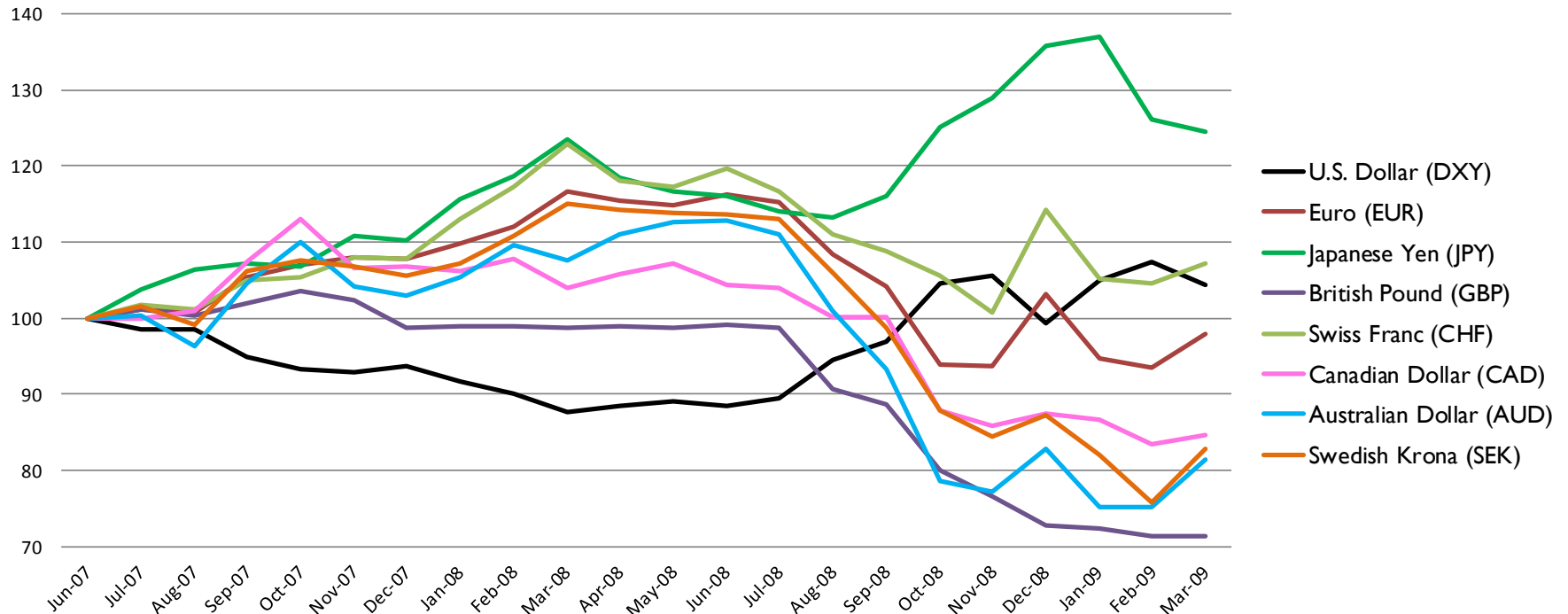


Source: MSCI, OST staff calculation



Currency During Great Financial Crisis

Great Financial Crisis from 6/2007 to 3/2009



Through the 21 months of the Great Financial Crisis: S&P 500 plunged **-45%** while U.S. Dollar was up **+4%**. Meanwhile, the following major foreign currencies traded against USD:

- Japanese Yen rallied **+25%** and Swiss Franc rose **+7%**
- Hong Kong Dollar rose **+0.9%** and Euro was down **-2%**
- **Canadian Dollar fell -16%, Swedish Krona fell -17%, Australian Dollar fell -19%, and British Pound declined -29%.**

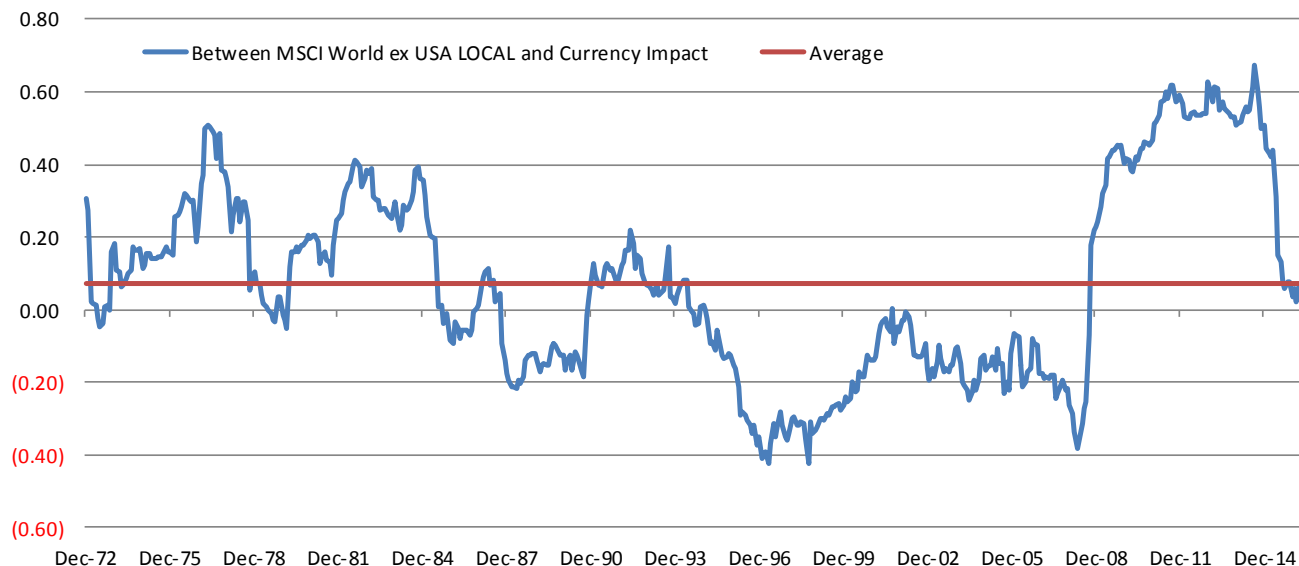
Currency hedging may offset portfolio risk.



Correlation - Is FX an Effective Diversifier?

- Correlation between FX and MSCI World ex-U.S. jumped after 2007 and 2008.

Rolling 3-Year Correlation of Hedged Equity Index and FX Exposure



Correlation from 1/1970 to 9/2016	S&P 500	MSCI World ex USA Unhedged	MSCI World ex USA in LOCAL	Currency Impact = World ex USA Unhedged - LOCAL	U.S. Dollar Index
S&P 500	1.00	0.66	0.72	0.10	(0.12)
MSCI World ex USA Unhedged		1.00	0.88	0.54	(0.49)
MSCI World ex USA in LOCAL			1.00	0.07	(0.05)
Currency Impact = World ex USA Unhedged - LOCAL U.S. Dollar Index				1.00	(0.94)
					1.00

Source: MSCI, Bloomberg, OST staff calculation

Summary and Q&A

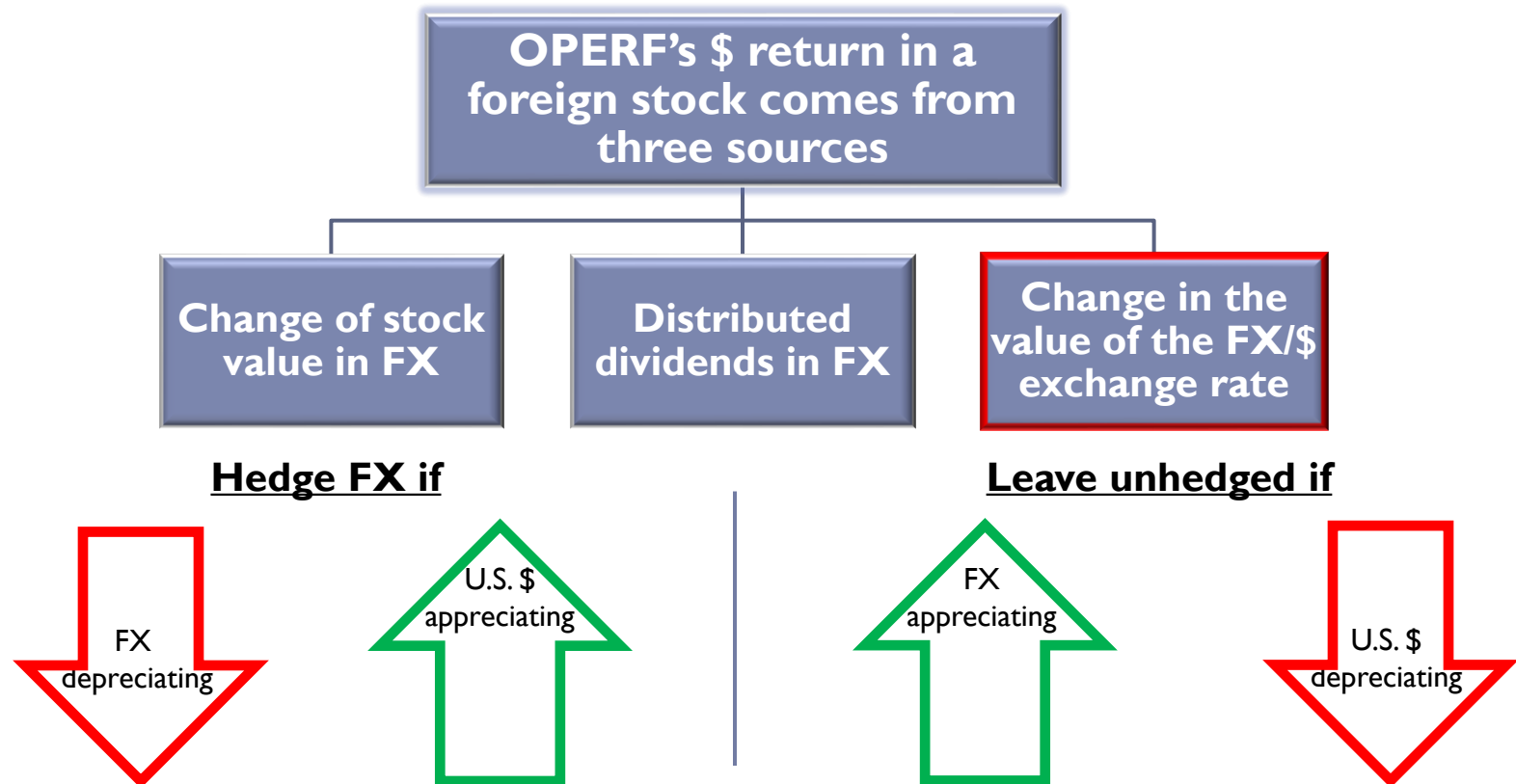
- Currency is a risk exposure.
- Unmanaged currency exposure is a source of uncompensated risk.
- Currency exposure has added volatility without increasing return over the long run.
- Currency fluctuations contribute meaningfully to OPERF's total risk.

Q&A



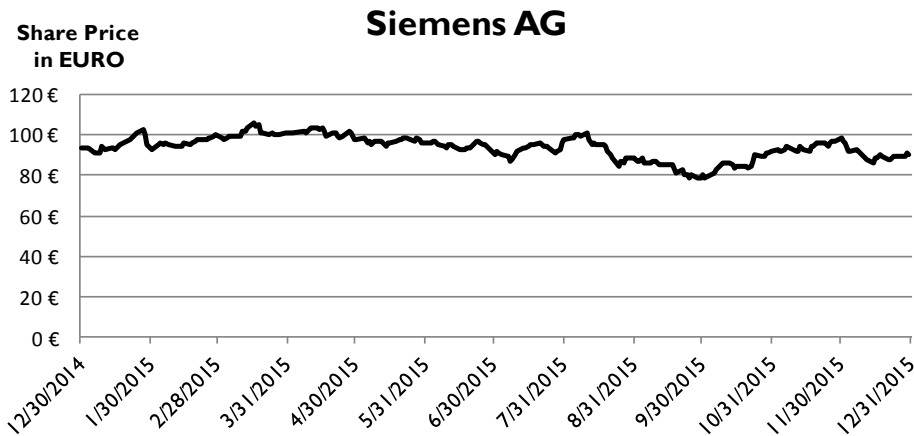
Foreign Equity Investing & Currency 101

- Foreign currency exposure is a by-product of international stock selection.
- Internationally diversified portfolios have an equal exposure to currency as to assets.
- International stocks are traded on a foreign exchange and priced in foreign currency (FX); however, U.S. investors are only interested in the value of stock priced in U.S. dollars.

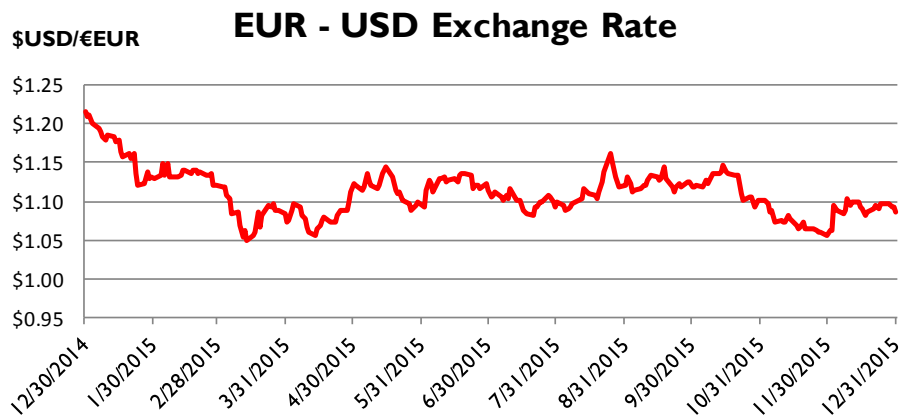


Appendix 2

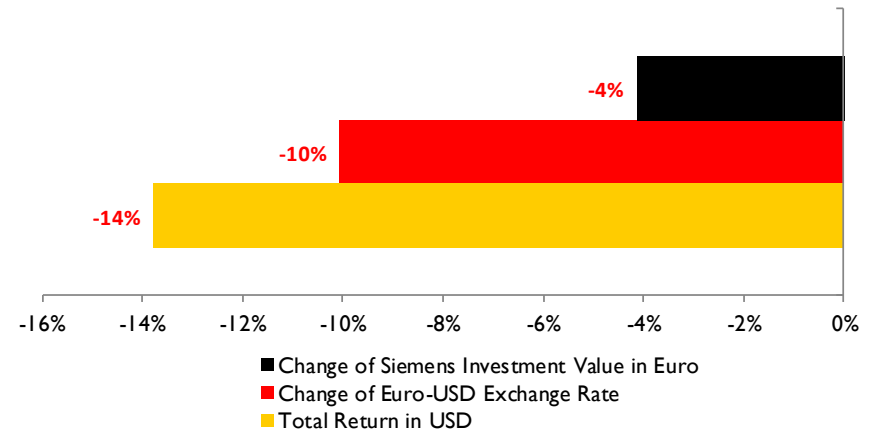
Stock Example – Siemens AG



	Purchase 12/30/2014	Sell 12/30/2015	Gain/(Loss)	Return in %
Share Price	93.75 €	89.88 €	-3.87 €	-4.1%
# of Shares	100	100		
Total Value in Euro	9,375 €	8,988 €	-387 €	-4.1%
1 \$USD per 1 €EUR	1.2156	1.0933		-10.1%
Total Value in USD	\$11,396	\$9,827	-\$1,570	-13.8%



Siemens Investment Return in 2015

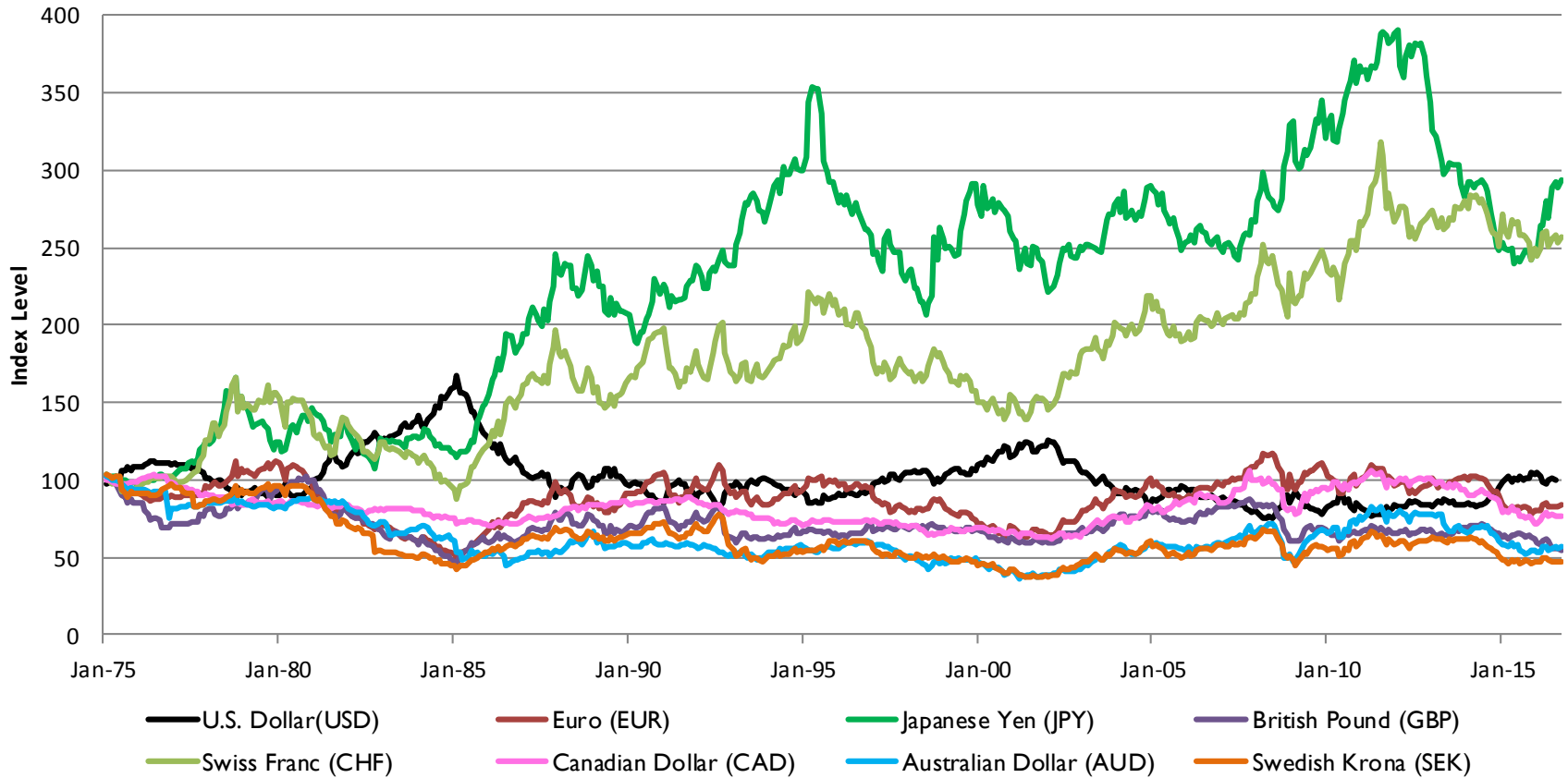


Source: Bloomberg

Appendix 3

Major Currency Price History

From 1/31/1975 to 9/30/2016

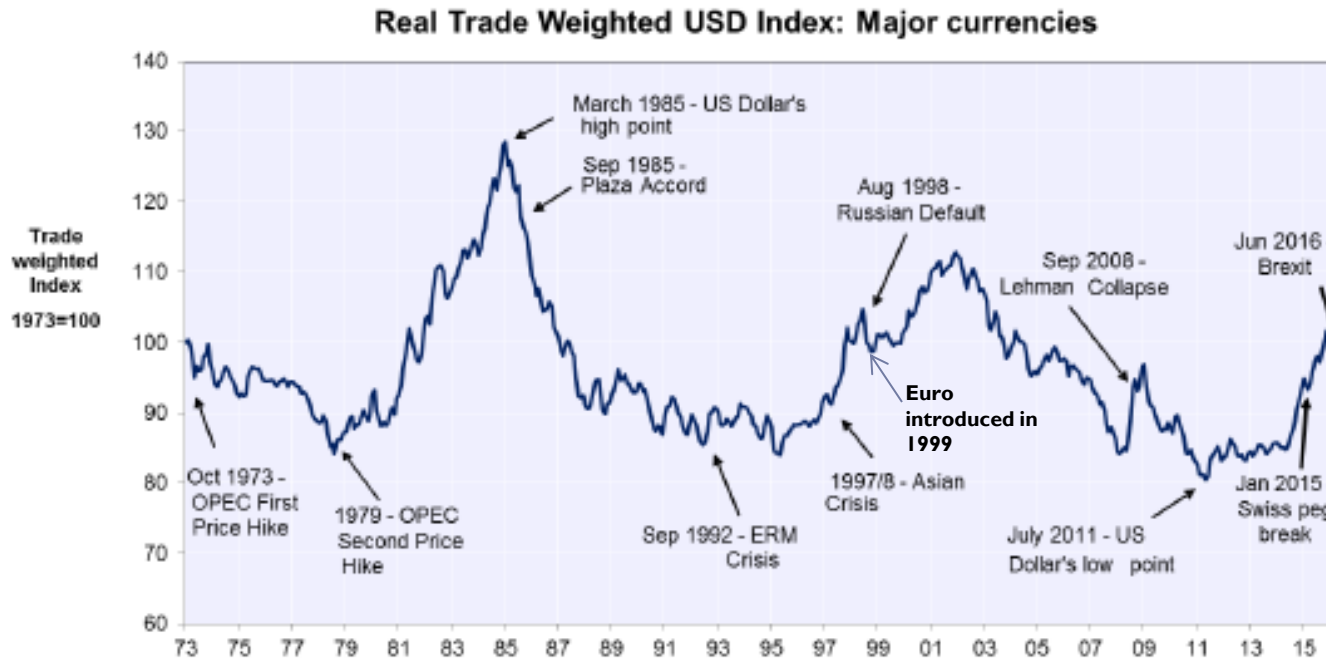


Source: Bloomberg



Appendix 4

Recent U.S. Dollar Price History



	Period	Move	%	Duration
1	1980 - 1985	Strengthening USD	86%	5 years
2	1985 - 1995	Weakening USD	-49%	10 years
3	1995 - 2002	Strengthening USD	47%	7 years
4	2002 - 2011	Weakening USD	-39%	9 years
5	2011 - present	Strengthening USD	31%	??

Average duration: 7.75 years

Source: Record Currency Management, OST staff calculation

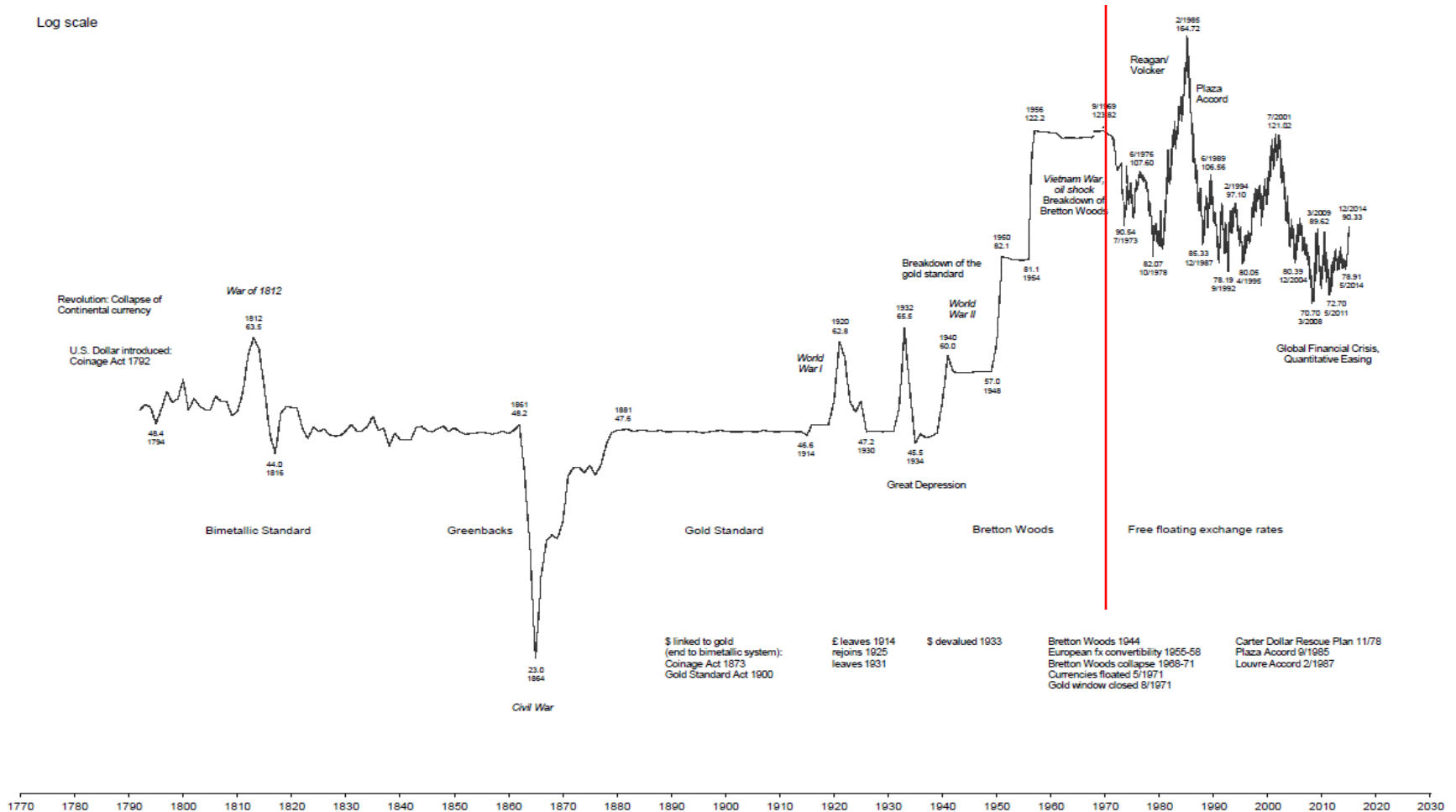
Appendix 5

U.S. Dollar Price History Since Independence

U.S. Dollar Index (extended), 1792 to date

Monthly bars

Log scale



Source: Millennium Global Investments Ltd.

TAB 8 – IAP Update Discussion



Individual Account Program Review Update

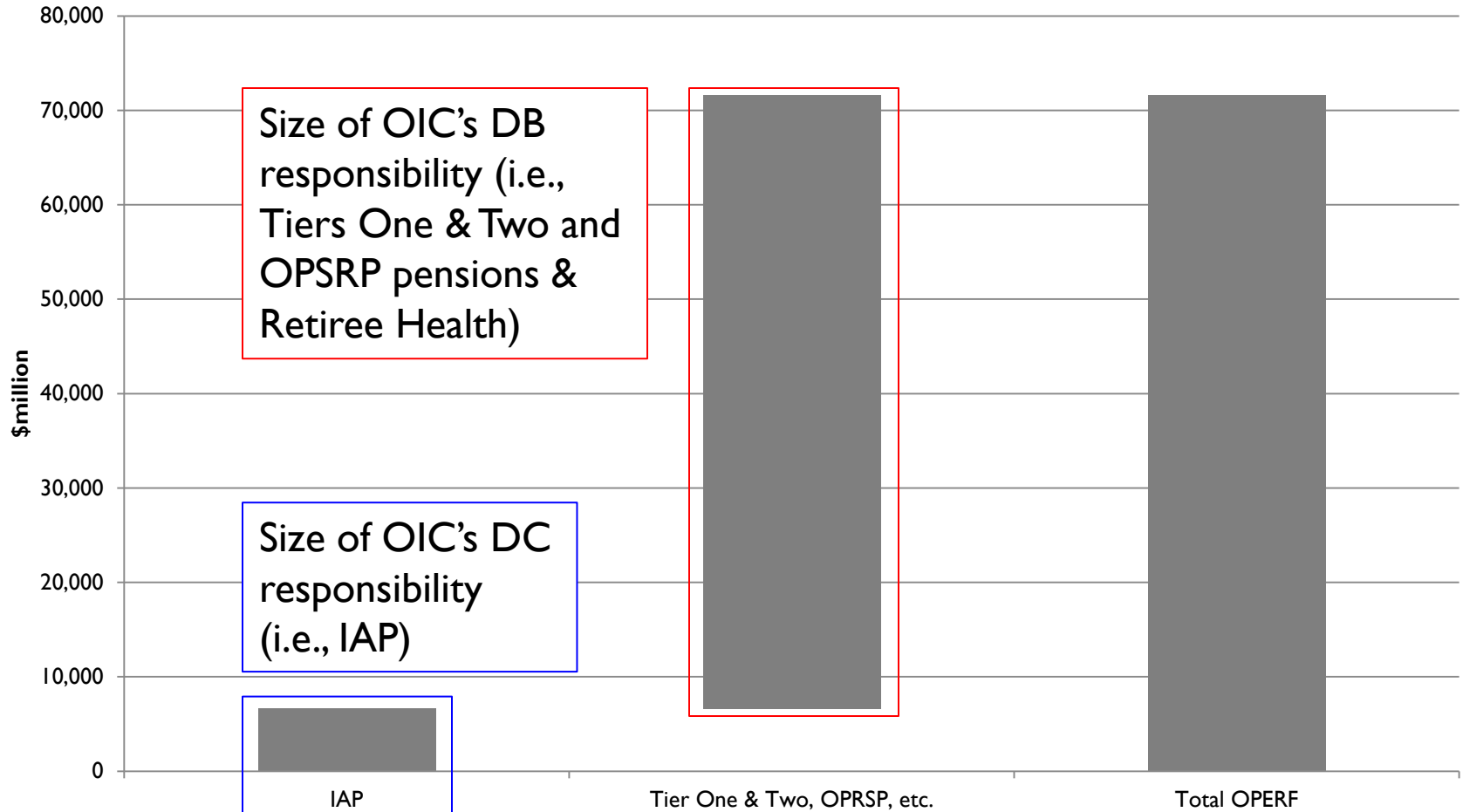
December 7, 2016

Follow-Up Items from the September Joint OIC/PERS Board Discussion

Objective: Determine the optimal approach to investing the Individual Account Program (IAP) within OPERF, taking into consideration investment and structural risk, participant demographics, investment time horizon, and fiduciary responsibility.

- ▶ Differentiate the PERS accounts that invest in OPERF:
 - ▶ Defined Contribution (DC): (IAP) – Participant risk exposure / Participant-Specific Time Horizon
 - ▶ Defined Benefit (DB): Maximizing risk adjusted returns / Long-Term Time Horizon
- ▶ Discuss the structure of a hypothetical, custom Target-Date Fund (TDF) suite as well as associated rebalancing and manager selection implications.
- ▶ Review custom glide path design solutions prepared by two asset managers for a hypothetical employee eligible for both OPSRP **pension benefits and Social Security**.

OIC's Defined Benefits and Defined Contributions Oversight for OPERF



Asset values as of December 2015

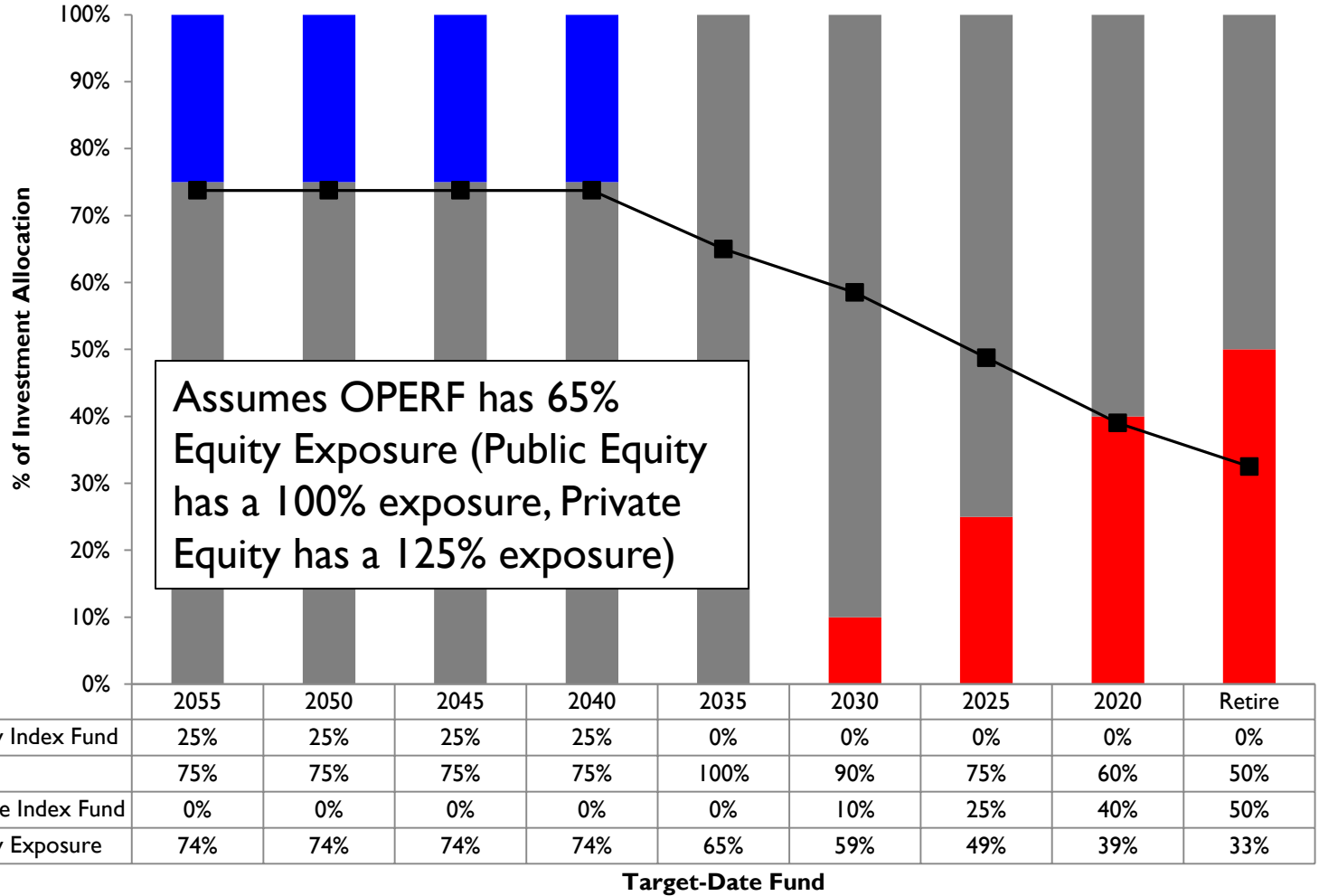
IAP Considerations

- ▶ OPERF assets are divided into six programs: Tier One/Tier Two Regular Pension Accounts; Tier One/Tier Two Variable Pension Accounts; OPSRP Pension Accounts; Retiree Health Insurance Account (RHIA); Retiree Health Insurance Premium Account (RHIPA); and IAP.
- ▶ OPERF's asset allocation, as determined by the OIC, is designed to maximize expected long-term investment returns for PERS and its beneficiaries.
- ▶ There are more than 247,000 IAP accounts, each with a finite investment horizon, within OPERF.
- ▶ Whether or not the Legislature changes the structure and/or funding of IAP, participants have \$7 billion of earned assets invested in IAP that may not be modified. Accordingly, IAP should be managed on the assumption that it is an ongoing, separate pool of assets.
- ▶ The administrative reporting structure of IAP creates a narrow window for any changes to investment structure. Changes to investment methodology can be made with new reporting effective January 1st of each year.

Migrating IAP to a Target-Date Fund Structure

- ▶ The initial recommendation is to migrate the IAP accounts into a new set of custom target-date funds (TDFs) to better match participants by age to the risk-return profiles of specific TDFs, and to be consistent with ERISA QDIA guidelines.
- ▶ Participants would not have the ability to direct their investment into a TDF outside their age cohort (i.e., choosing a riskier or more conservative option than that assigned to their individual age cohort). This approach is consistent with the IAP's existing investment methodology and alleviates significant educational and administrative burdens associated with a member-directed approach.
- ▶ The following slides show a hypothetical scenario in which IAP assets gradually transition from OPERF asset allocation into public equity and fixed income index funds while OPERF is simultaneously “unitized”.
- ▶ This hypothetical scenario is one among many targeting a specific equity glide path and assuming OPERF has a certain equity exposure. These and other scenario elements are customizable.

Hypothetical TDF Suite

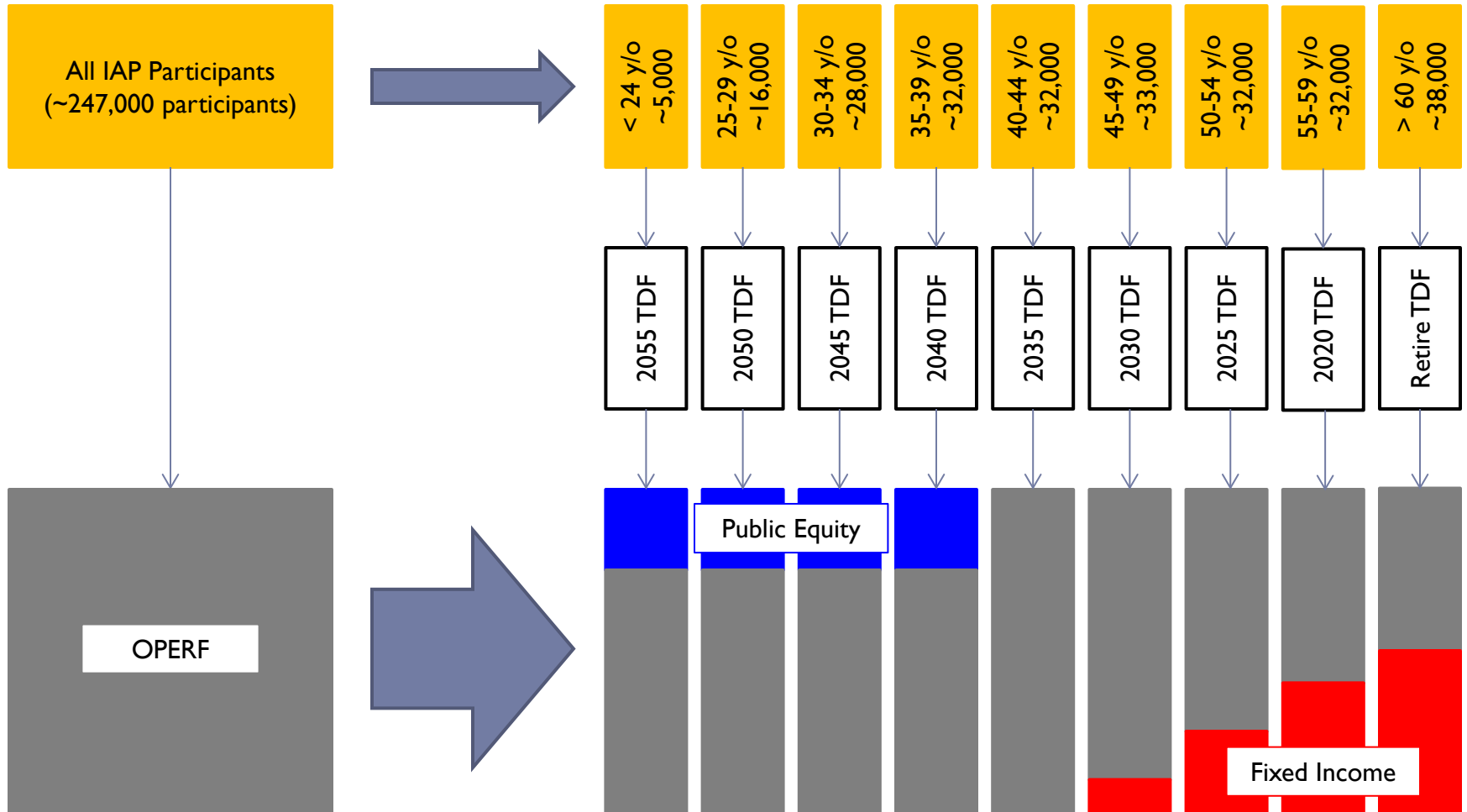


IAP Asset Distribution

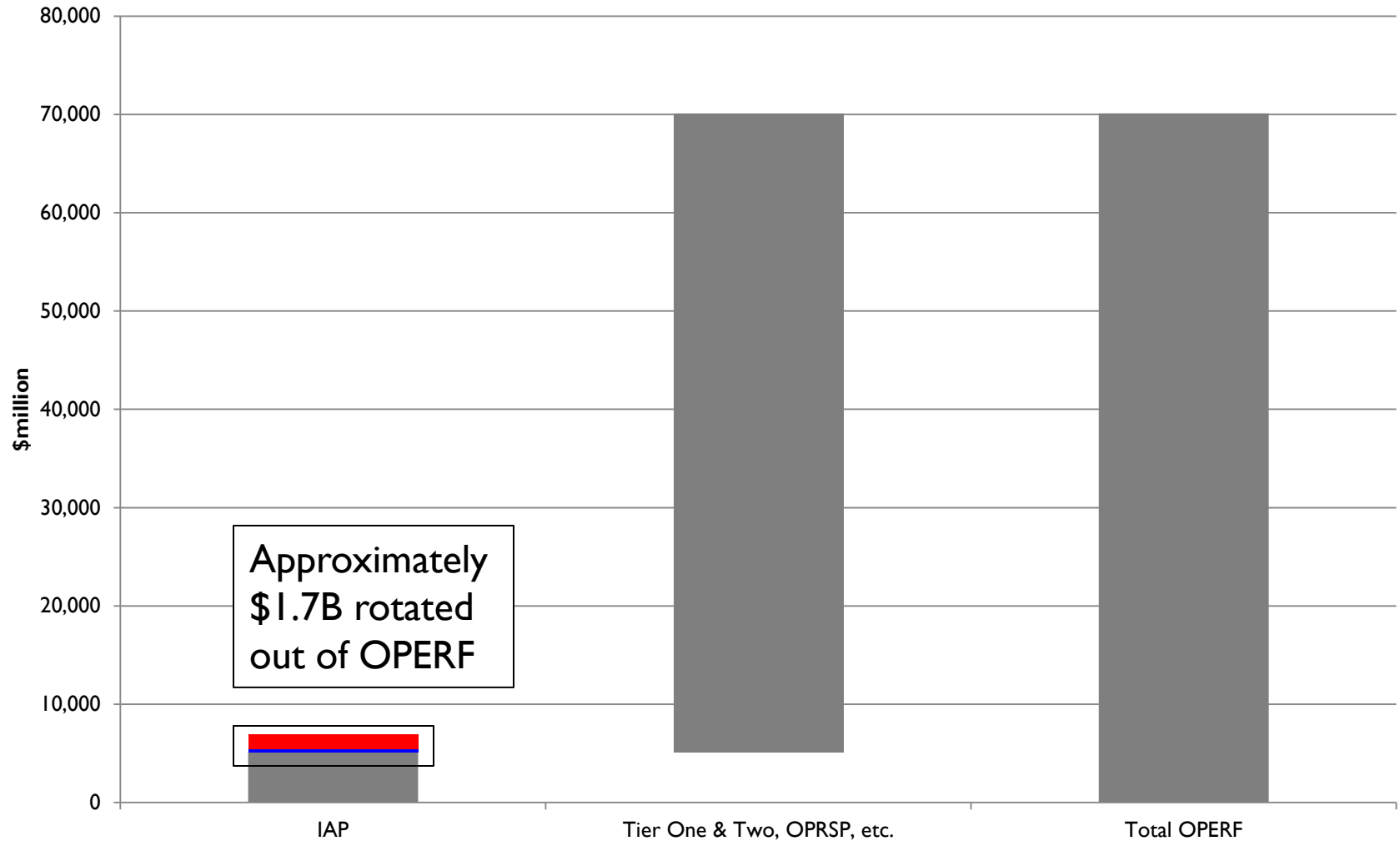
The following table and charts show the distribution of IAP accounts across age cohorts (as of December 2015). Members who are closer to retirement (by age) have a majority of the funds invested under the current OPERF asset allocation model.

Age Cohort	# Members	Average IAP Balance	Total Assets
<24	4,794	\$1,632	\$7,823,548
25-29	16,282	\$5,209	\$84,810,546
30-34	27,904	\$12,862	\$358,891,568
35-39	31,587	\$21,567	\$681,237,212
40-44	31,934	\$29,265	\$934,534,802
45-49	32,828	\$33,692	\$1,106,042,650
50-54	32,479	\$36,143	\$1,173,889,204
55-59	31,786	\$36,580	\$1,162,729,358
60>	37,543	\$30,644	\$1,150,473,884
Total	247,137	\$26,950	\$6,660,434,787

Hypothetical Rebalance



Post-Rebalance Allocation



Implications of Migrating IAP to a TDF Structure

- ▶ In the hypothetical scenario, approximately 26% of IAP assets are moved into two index funds.
 - ▶ Proceeds for these two index fund investments would likely come from the liquid portion of OPERF.
- ▶ Creating a set of custom TDFs would not affect the target asset allocation of OPERF.
 - ▶ Target allocations within the custom TDFs can be adjusted independent of OPERF's asset allocation.
- ▶ Assuming there are no legislative changes to IAP:
 - ▶ Average IAP balances would increase for the older age cohorts as OPSRP members with long tenures make up a greater proportion of those cohorts;
 - ▶ IAP would continue to grow as a fraction of OPERF until it reaches steady state; and
 - ▶ 85% of IAP participants continue to redeem their IAP balances upon retirement.

Leaving IAP's investment structure unchanged could result in increasing cash outflows from OPERF due to IAP redemptions. A gradual rebalance into a fixed income index fund for older age cohorts may alleviate this liquidity concern.

SSGA and Russell Investments Glide Path Designs

- ▶ Staff reached out to SSGA and Russell Investments, who currently manage TDF suites, for additional analysis and “basic” glide path designs.
- ▶ Asset managers were provided with some basic assumptions to generate rudimentary glide paths for a hypothetical PERS-eligible employee. The intention was to compare the glide path for these firm’s off-the-shelf TDF suites to a custom glide path for an employee with an OPSRP pension benefit and Social Security income.
- ▶ A more comprehensive analysis would include reviewing the demographics of the participants (e.g., salaries, expected years of service, etc.) as well as the target retirement objectives (e.g., income replacement ratio).
- ▶ Although basic, the analyses confirm some intuition. A custom TDF glide path can be more aggressive than that for an off-the-shelf TDF suite. However, moderating the investment risk for employees approaching retirement via reducing equity risk would still be a desirable attribute.

SSGA Glide Path Comparison

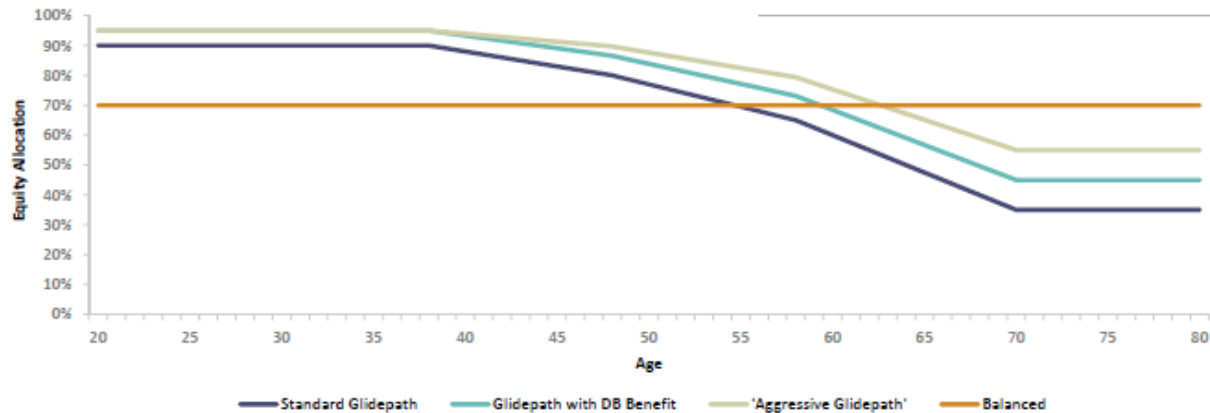
Evolving Glidepaths for Added Retirement Benefits

The chart below illustrates three different hypothetical glidepath designs as well as a typical balanced strategy

- To illustrate the potential benefits of target date fund investing, SSGA utilized these glidepaths and forward-looking Monte Carlo* simulations with simplified asset allocation (Global Equities for stocks, US Investment Grade Bonds for fixed income) to assess expected wealth at retirement and market risk
- Participant assumptions were tailored for State of Oregon

'Base Case' Assumptions

Starting Age	25
Retirement Age	65
Starting Salary	\$40,000
Wage Growth Rate	3% Real Annual Pay Increases for 13 Years (inline with inflation thereafter)
Savings Rate	6%



Source: SSGA based on assumptions and data provided by plan sponsors. As of June 30, 2016.

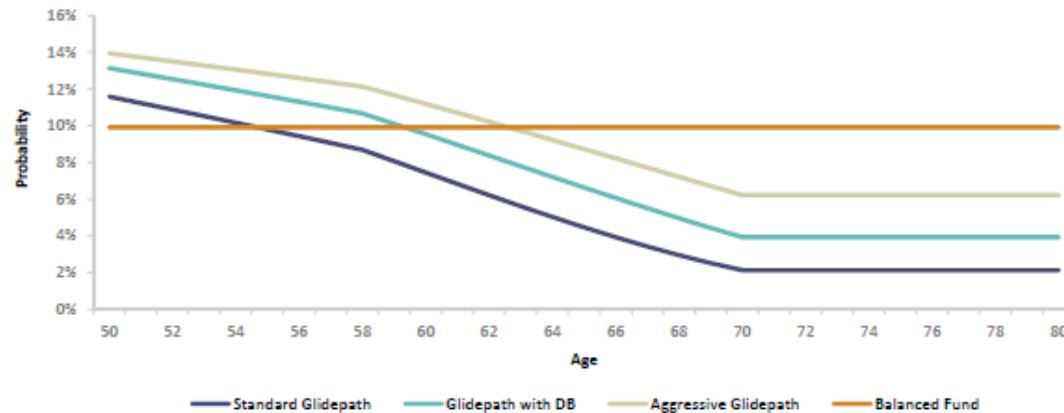
* Monte Carlo analysis is one specific multivariate modeling technique that allows researchers to run multiple trials and define all potential outcomes of an event or investment. Running a Monte Carlo model creates a risk assessment for a given investment or event under review. By comparing results against risk tolerances, managers can decide whether to proceed with certain investments or projects.

SSGA Market Risk by Glide Path

Evolution of Market Risk Protection

In evolving the risk profile, Target Date funds offer the ability to reduce market risk as the time horizon shortens

- Chart below illustrates the probability of -10% return based on the expected risk of the various glidepaths and balanced fund
- The balanced fund investor has a higher probability for such a loss in retirement given the higher static allocation to equities
- Given the presence of a DB benefit, participants can sustain greater exposure to market risk during their working career for the added benefit of greater expected savings



Source: SSGA based on assumptions and data provided by plan sponsors.
As of June 30, 2016.
The information contained above is for illustrative purposes only.

STATE STREET
GLOBAL ADVISORS.

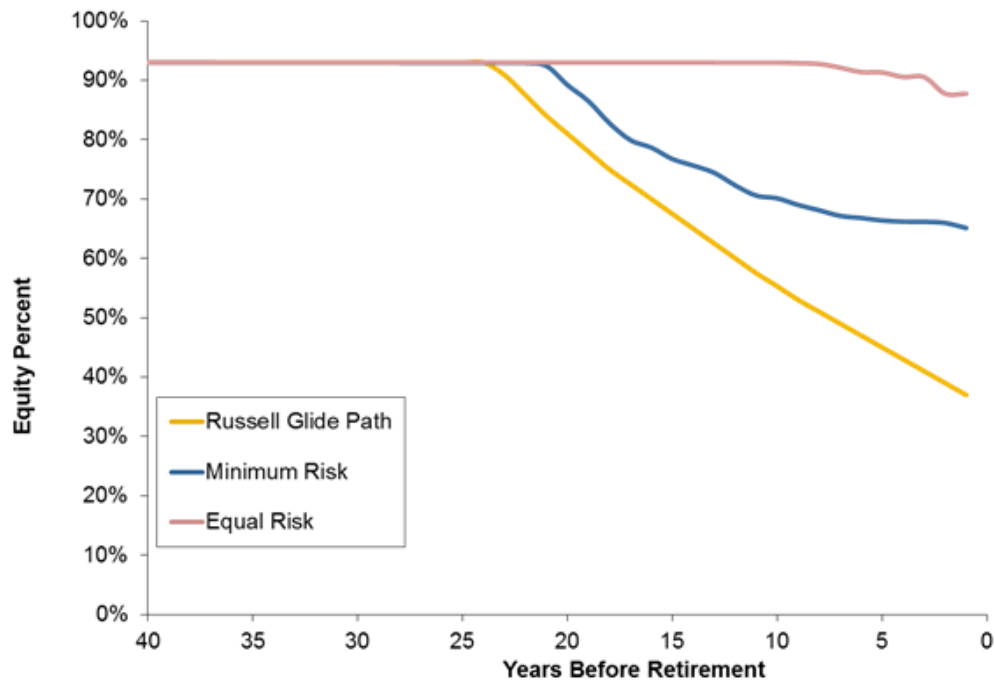
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Russell Investment Glide Path Comparison

Glide paths Case 2, base assumptions



IAP Review Next Steps

- ▶ Due to the administrative reporting structure of IAP, the next window for a restructuring of IAP would be January 1, 2018.
- ▶ Recommend an asset manager to develop a custom glide path in consideration of:
 - ▶ Utilization of Current OPERF Managers;
 - ▶ Participant Demographics;
 - ▶ Long-Term Liquidity Projections;
 - ▶ Social Security Income;
 - ▶ Target Income Replacement Ratio; and
 - ▶ “To versus Through” Fund Structure.
- ▶ Coordinate administrative, logistical, implications, and timing with OST staff and PERS, custodian, recordkeeper, and glide path asset manager.

TAB 9 – Asset Allocations & NAV Updates

Asset Allocations at October 31, 2016

OPERF	Regular Account					Variable Fund	Total Fund		
	Policy	Target ¹	\$ Thousands	Pre-Overlay	Overlay	Net Position	Actual	\$ Thousands	\$ Thousands
Public Equity	32.5-42.5%	37.5%	25,952,055	37.8%	464,649	26,416,704	38.5%	597,014	27,013,718
Private Equity	13.5-21.5%	17.5%	13,660,655	19.9%		13,660,655	19.9%		13,660,655
Total Equity	50.0-60.0%	55.0%	39,612,710	57.7%	464,649	40,077,359	58.4%		40,674,373
Opportunity Portfolio	0-3%	0.0%	1,445,237	2.1%		1,445,237	2.1%		1,445,237
Fixed Income	15-25%	20.0%	14,498,777	21.1%	606,980	15,105,757	22.0%		15,105,757
Real Estate	9.5-15.5%	12.5%	8,548,664	12.4%	(23,700)	8,524,964	12.4%		8,524,964
Alternative Investments	0-12.5%	12.5%	3,519,273	5.1%		3,519,273	5.1%		3,519,273
Cash²	0-3%	0.0%	1,055,340	1.5%	(1,047,929)	7,411	0.0%	2,404	9,815
TOTAL OPERF		100%	\$ 68,680,001	100.0%	\$ -	\$ 68,680,001	100.0%	\$ 599,418	\$ 69,279,419

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 (1 quarter lagged), & 5% CPI+400bps.

²Includes cash held in the policy implementation overlay program.

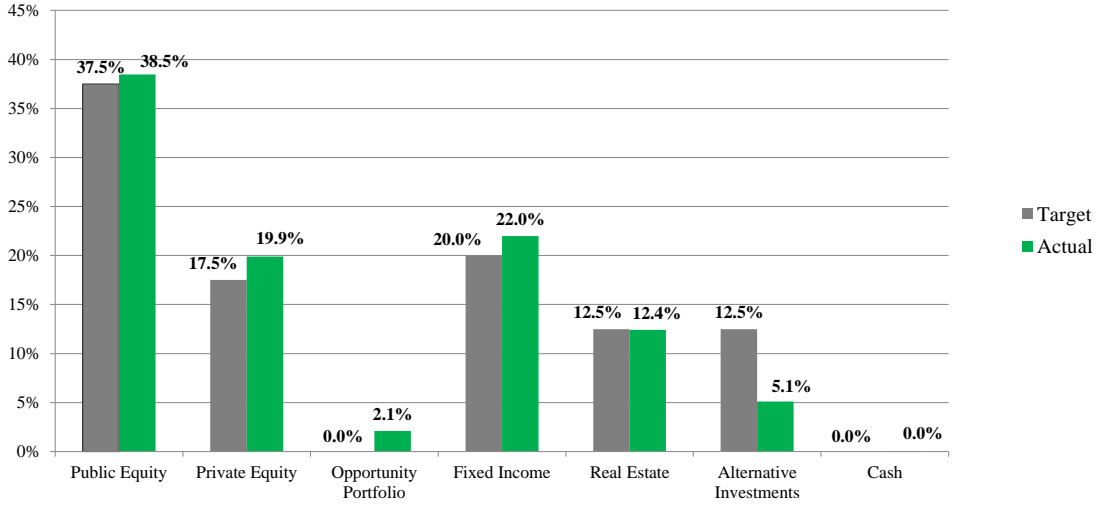
SAIF	Policy	Target	\$ Thousands	Actual
Total Equity	7-13%	10.0%	458,679	9.7%
Fixed Income	80-90%	85.0%	4,243,158	89.5%
Real Estate	0-7%	5.0%	0	0.0%
Cash	0-3%	0%	40,089	0.8%
TOTAL SAIF			\$ 4,741,926	100.0%

CSF	Policy	Target	\$ Thousands	Actual
Domestic Equities	25-35%	30%	423,005	29.0%
International Equities	25-35%	30%	400,649	27.5%
Private Equity	0-12%	10%	165,951	11.4%
Total Equity	65-75%	70%	989,606	67.9%
Fixed Income	25-35%	30%	444,070	30.5%
Cash	0-3%	0%	23,505	1.6%
TOTAL CSF			\$ 1,457,181	100.0%

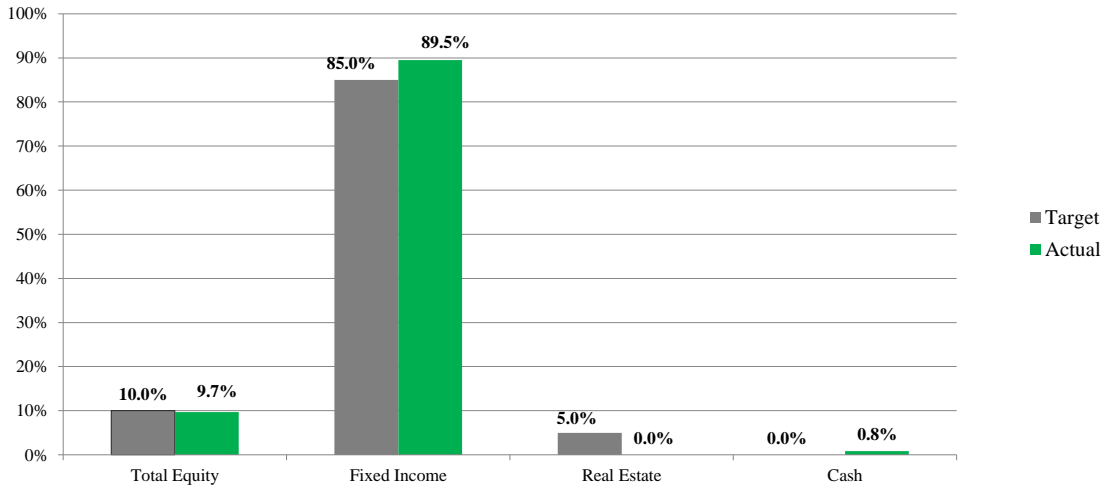
SOUE	Policy	Target ³	\$ Thousands	Actual
Global Equities	65-75%	70%	1,484	70.1%
Growth Assets	65-75%	70%	1,484	70.1%
Fixed Income	25-35%	30%	633	29.9%
Cash	0-3%	0%	1	0.1%
Diversifying Assets	25-35%	30%	634	29.9%
TOTAL SOUE			\$ 2,118	100.0%

³Revised asset allocation adopted by OIC, March 2015.

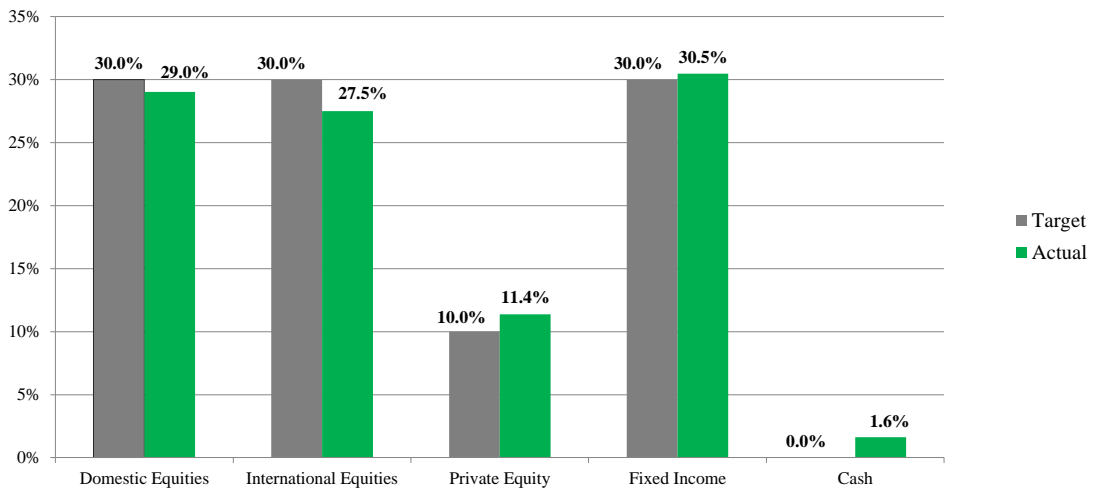
OPERF Asset Allocation



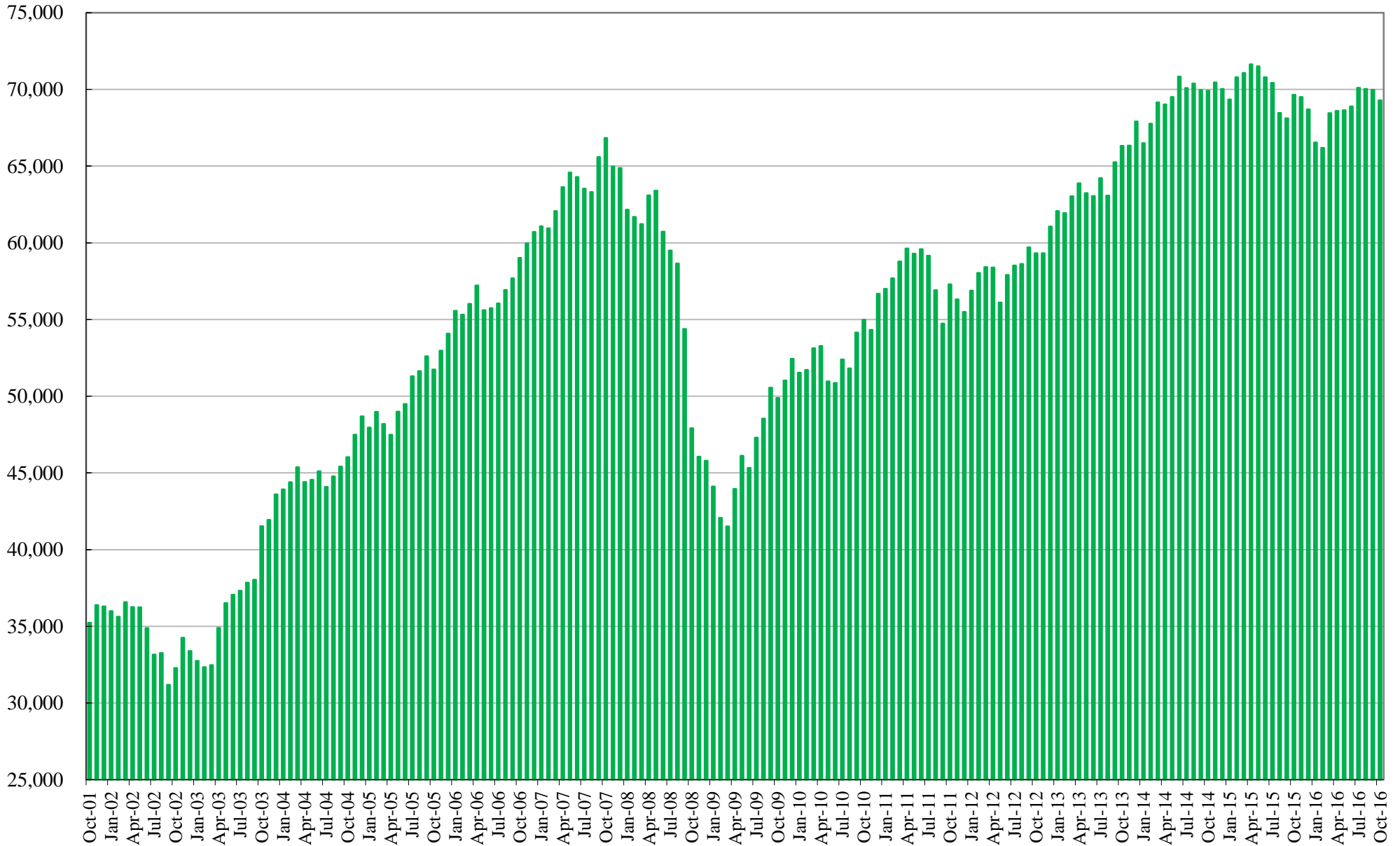
SAIF Asset Allocation



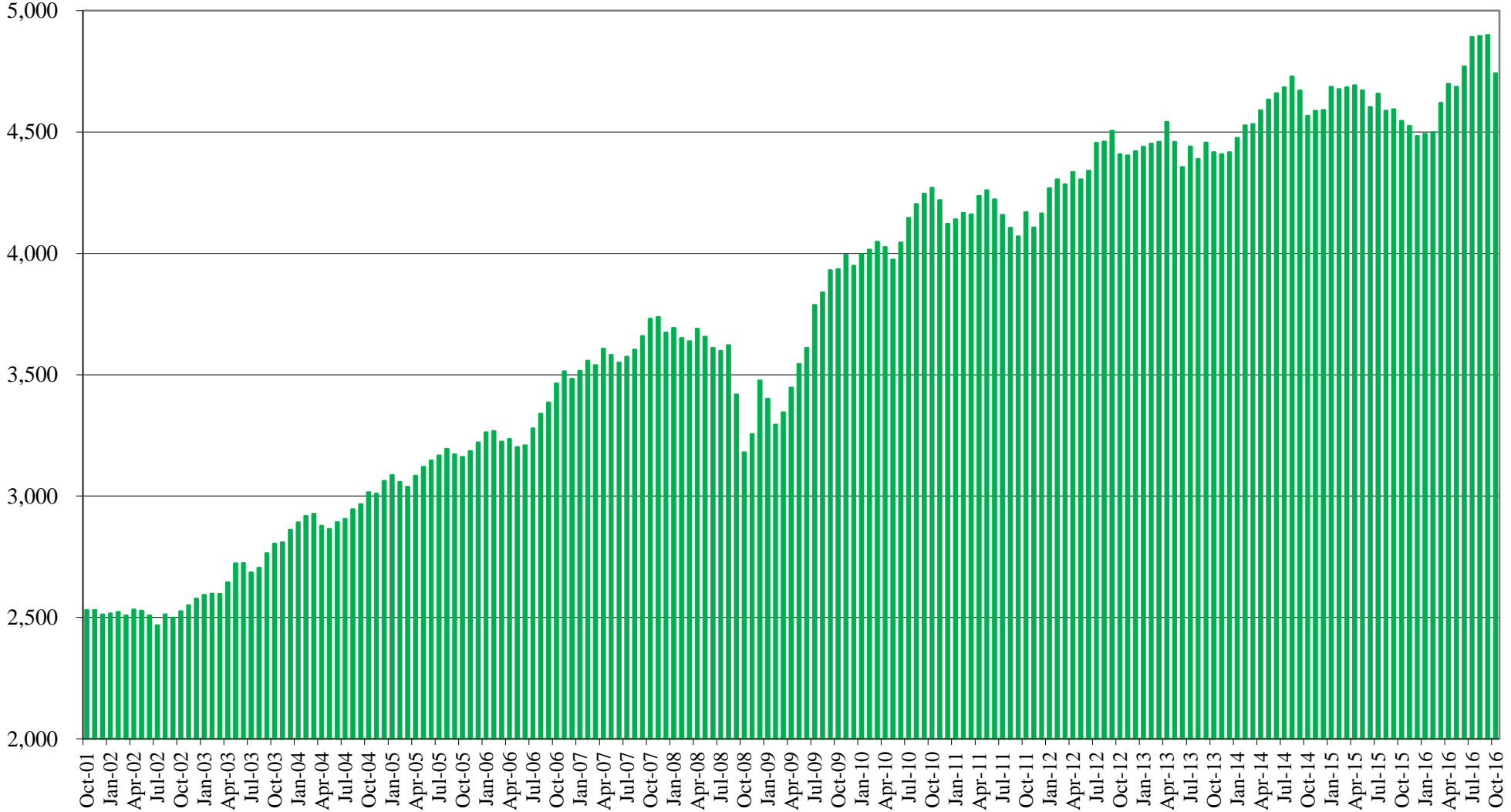
CSF Asset Allocation



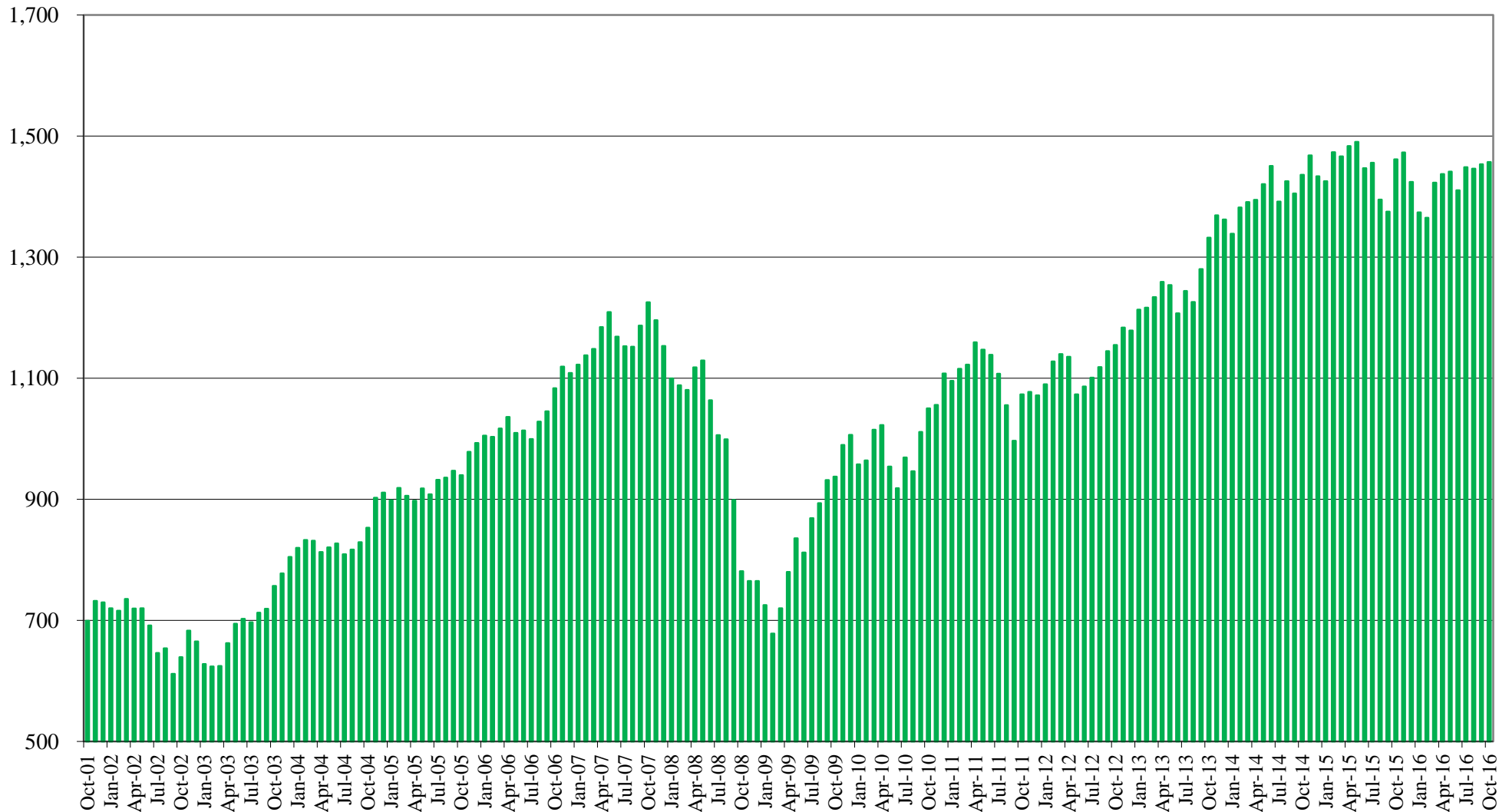
OPERF NAV
15 years ending October 2016
(\$ in Millions)



SAIF NAV
15 years ending October 2016
(\$ in Millions)



CSF NAV
15 years ending October 2016
(\$ in Millions)



TAB 10 – Forward Calendar

2016/17 OIC Forward Calendar and Planned Agenda Topics

- February 1, 2017:** Private Equity Program Review
Real Estate Program Review
IAP Recommendation
Placement Agent Report
2018 OIC Calendar Approval
- March 15, 2017:** Private Equity Manager Recommendation
Real Estate Manager Recommendation
OPERF Overlay Review
Securities Lending Update
OPERF Currency Project Update
Q4 2016 OPERF Performance & Risk Report
- April 26, 2017:** Private Equity Manager Recommendation
Real Estate Reporting & Valuation Consultant Recommendation
OPERF Asset Allocation & Capital Market Assumptions Update
SAIF Annual Review
OPERF Alternatives Portfolio Review
OIC Policy Updates
- June 7, 2017:** OPERF Currency Project Recommendation
OPERF Opportunity Portfolio Review
Q1 2017 OPERF Performance & Risk Report
Operations Update
CSF Annual Review
- August 9, 2017:** Corporate Governance Update
OIC Policy Updates
OITP Review
Investment Division Update
- September 20, 2017:** Q2 2017 OPERF Performance & Risk Report
- November 1, 2017:** Public Equity Program Review
CEM Benchmarking Report
- December 13, 2017:** OPERF Q3 2017 Performance & Risk Report
OSTF Review
Fixed Income Program Review