
Oregon Investment Council

March 15, 2017
9:00 AM

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

Rukaiyah Adams
Chair

John Skjervem
Chief Investment Officer

Tobias Read
State Treasurer





OREGON INVESTMENT COUNCIL

Agenda

March 15, 2017
9:00 AM

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

<u>Time</u>	<u>A. Action Items</u>	<u>Presenter</u>	<u>Tab</u>
9:00-9:02	1. Review & Approval of Minutes February 1, 2017	Rukaiyah Adams <i>OIC Chair</i>	1
9:02-9:25	2. Committee Reports and CIO Update	John Skjervem <i>Chief Investment Officer</i>	2
9:25-9:30	3. 2018 OIC Meeting Schedule	John Skjervem	3
9:30-10:15	4. Apollo Investment Fund IX, L.P. <i>OPERF Private Equity Portfolio</i>	Michael Langdon <i>Senior Investment Officer</i> Tom Martin <i>TorreyCove Partners</i> Joshua Harris <i>Apollo Global Management, LLC</i>	4
10:15-10:30	5. Fixed Income Policy Update <i>OPERF Fixed Income Portfolio</i>	Tom Lofton <i>Investment Officer, Fixed Income</i>	5
10:30-10:45	----- BREAK -----		
	<u>B. Information Items</u>		
10:45-11:05	6. Securities Lending Update <i>OPERF/SAIF/CSF/OSTF/Agency Accounts</i>	Perrin Lim <i>Director of Capital Markets</i> Robert "Bo" Jackson <i>Vice President, Senior Portfolio Manager, State Street Global Advisors</i> Johnson Shum <i>Vice President, Securities Finance, State Street Global Markets</i>	6

Rukaiyah Adams
Chair

John Russell
Vice Chair

Rex Kim
Member

Rick Miller, Jr.
Member

Tobias Read
State Treasurer

Steve Rodeman
PERS Director

11:05-11:25	7. Overlay Review <i>OPERF</i>	Karl Cheng <i>Investment Officer, Portfolio Risk & Research</i> Greg Nordquist <i>Director, Overlay Strategies, Russell Investments</i> Ben Linford <i>Portfolio Manager, Overlay Strategies, Russell Investments</i>	7
11:25-11:50	8. Currency Project Update <i>OPERF</i>	Karl Cheng Jiangning (Jen) Plett <i>Senior Internal Investment Auditor, OST</i>	8
11:50-12:15	9. Q4 2016 Performance & Risk Report <i>OPERF</i>	Karl Cheng Janet Becker-Wold <i>Callan Associates</i>	9
12:15-12:20	10. Asset Allocations & NAV Updates a. Oregon Public Employees Retirement Fund b. SAIF Corporation c. Common School Fund d. Southern Oregon University Endowment Fund	John Skjervem	10
	11. Calendar — Future Agenda Items		11
	12. Other Items	Council Members Staff Consultants	

C. Public Comment Invited

10 Minutes

TAB 1 – REVIEW & APPROVAL OF MINUTES

February 1, 2017 Regular Meeting



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

OREGON INVESTMENT COUNCIL
FEBRUARY 1, 2017
MEETING MINUTES

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

Staff Present: Darren Bond, John Skjervem, Deena Bothello, Karl Cheng, May Fanning, Michael Langdon, Perrin Lim, Jen Plett, Jen Peet, James Sinks, Michael Viteri, Tony Breault, Amanda Kingsbury, Austin Carmichael, Dana Millican, Ricardo Lopez, William Hiles, Andrew Coutu, Jo Recht, Mark Selfridge, Ben Mahon, Mike Mueller, Kim Olson, John Hersehy, Debra Day, Tom Lofton, Kip Memmot, Chelsea Brossard, Dmitri Palmateer, Lauren Guy

Consultants Present: Tom Martin, David Fann (TorreyCove); David Glickman, Dillon Lorda and Christy Fields (PCA); Janet Becker-Wold, and James Callahan (Callan)

Legal Counsel Present: Dee Carlson, Oregon Department of Justice

The February 1st, 2017 OIC meeting was called to order at 8:59 am by Rukaiyah Adams, OIC Vice Chair.

I. 9:00 am Review and Approval of Minutes

MOTION: Mr. Russell moved approval and Mr. Kim seconded the motion to approve the December 7, 2016 OIC meeting minutes which then passed by a 5/0 vote.

Committee Reports

John Skjervem, OST Chief Investment Officer gave an update on the following committee actions taken since the December 7, 2016 OIC meeting:

Private Equity Committee

None

Alternatives Portfolio Committee

None

Opportunity Portfolio Committee

None

Real Estate Committee

December 15, 2016 Windsor Columbia Realty Fund \$250 million

II. 9:02 am Special Officer Election

Mr. Skjervem officially welcomed incoming Oregon State Treasurer, Tobias Read and newly appointed OIC member, Mr. Rick Miller to the Council. Treasurer Read then nominated Rukaiyah Adams as OIC Chair and John Russell as OIC Vice Chair.

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

III. 09:02 am Private Equity Annual Plan and Review – OPERF Private Equity Portfolio

Michael Langdon, Senior Investment Officer, Private Equity along with Tom Martin of TorreyCove presented the 2017 Private Equity Annual Plan and Review. This presentation included the OPERF Private Equity program year in review, performance summary, portfolio update and 2017 program plan.

IV. 10:01 am Real Estate Annual Plan and Review – OPERF Real Estate Portfolio

Tony Breault, Senior Investment Officer, Real Estate, Austin Carmichael, Investment Officer, Real Estate, David Glickman and Dillon Lorda from Pension Consulting Alliance presented the 2017 Real Estate Annual Plan and Review. This presentation included the OPERF Real Estate program year in review, performance summary, portfolio update and 2017 program plan.

V. 11:06 am Annual Placement Agent Report

In accordance with OIC Policy 5.03.01: *Conflict of Interest and Code of Conduct*, John Hershey, Director of Alternative Investments, provided the Council with the Annual Placement Agent Disclosure report.

VI. 11:07 am Proposed 2018 OIC Meeting Dates

John Skjervem presented a list of proposed 2018 Council meeting dates. Chair Adams then asked OIC members to review the proposed dates and come to the next OIC meeting prepared to approve the list and any revisions thereto.

VII. 11:08 am Fixed Income Policy Update – OPERF Fixed Income Portfolio

Tom Lofton, Investment Officer, Fixed Income and Mike Viteri, Senior Investment Office, Public Equity presented the OIC with proposed Fixed Income Policy revisions and discussed with Council members the purpose and implications thereof.

MOTION: Mr. Kim moved approval of the proposed amendments to Appendix B (INV 401: *Strategic Role of Fixed Income for OPERF*). Treasurer Read seconded the motion which then passed by a 5/0 vote.

VIII. 11:16 am Asset Allocation & NAV Updates

Mr. Skjervem reviewed asset allocations and NAVs across OST-managed accounts for the period ended December 31, 2016.

IX. 11:16 am Calendar – Future Agenda Items

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

X. 11:16 am Other Items

None

11:16 am Public Comments

None

Ms. Adams adjourned the meeting at 11:17 am.

Respectfully submitted,

A handwritten signature in cursive script that reads "May Fanning".

May Fanning
Executive Support Specialist

TAB 2 – Committee Reports and CIO Update



Oregon Investment Program 2016 Review and 2017 Goals

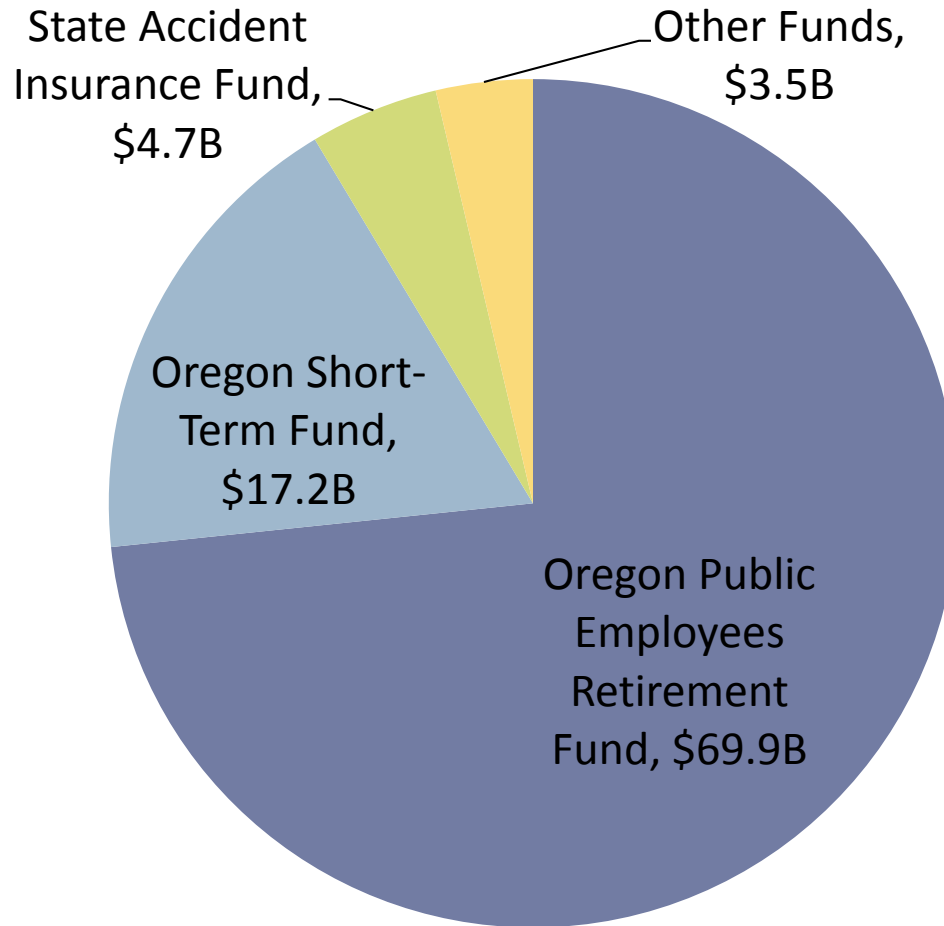
John D. Skjervem, CFA
Chief Investment Officer
Oregon State Treasury

March 15, 2017

OST Investment Division 2016 Hi-lights

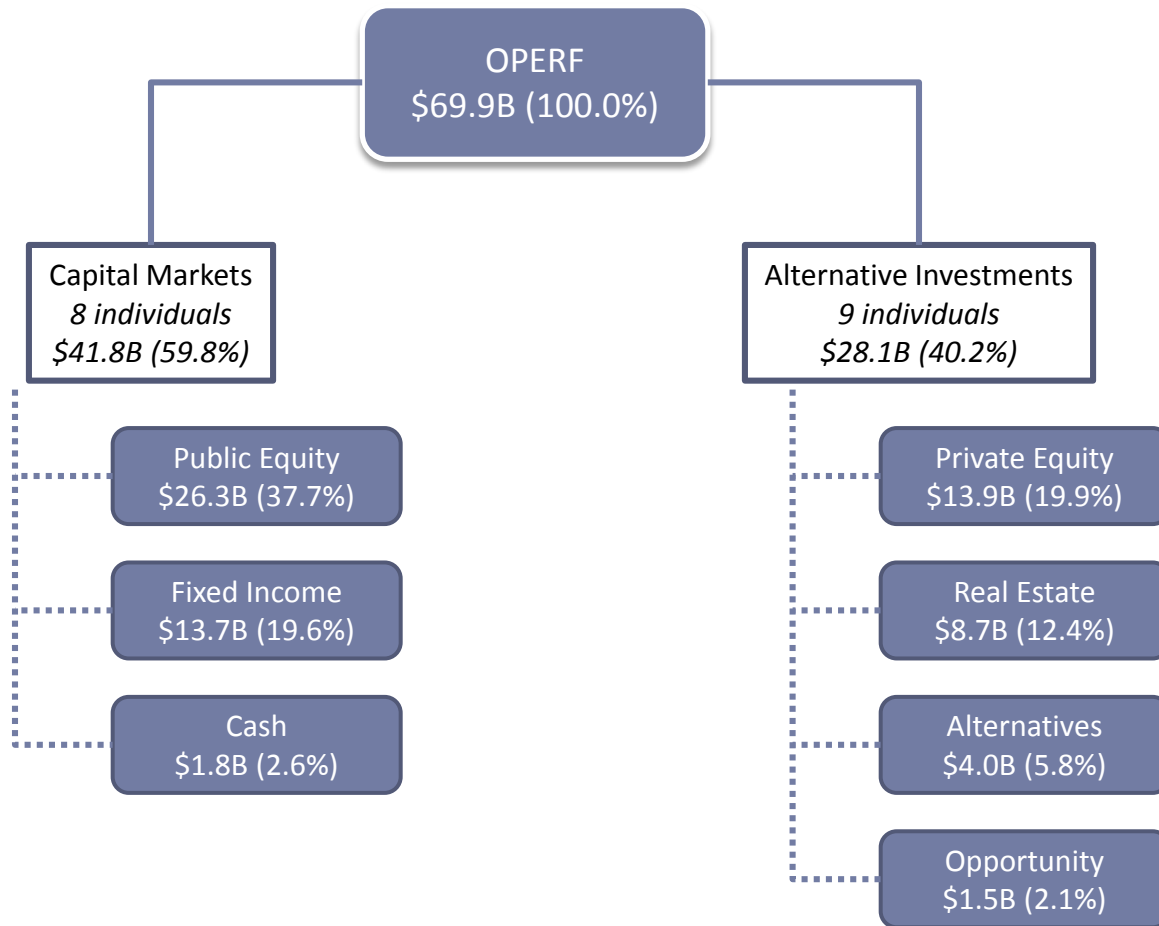
- ▶ Completed division consolidation in and relocation to new Tigard office
- ▶ Hired and assimilated several new employees in various investment, operations and administrative support positions
- ▶ Realized good investment performance in non-interest rate sensitive allocations
- ▶ Completed important asset class restructurings in fixed income, real estate and public equity
- ▶ Expanded and further refined Aladdin use in both capital markets transaction activities as well as total fund risk management efforts
- ▶ Enhanced rigor and consistency of private markets due diligence and underwriting processes
- ▶ Improved data integrity (e.g., Operations team identified and resolved over \$800M in reporting errors last year)

OST Investment Division Assets Under Management (at December 31 2016)



Total Assets: \$92.7 billion

Oregon Public Employees Retirement Fund Asset Allocation (at Dec 31 2016)



Trust Universe Comparison Service (TUCS®) Cohort Profile & Comparison

OPERF Cohort: Public Plans Greater than \$10 Billion

Average Asset Allocation
as of December 31, 2016:¹

49.7% - Public Equity
23.3% - Fixed Income
6.2% - Real Estate
16.0% - Alternatives
1.7% - Other
3.7% - Cash

OPERF Asset Allocation
as of December 31, 2016:

37.7% - Public Equity
19.6% - Fixed Income
12.4% - Real Estate
25.7% - Alternatives²
2.1% - Other
2.6% - Cash

¹ Source: State Street; Wilshire Trust Universe Comparison Service®.

² For comparative purposes, "Alternatives" includes all of OPERF's Private Equity and Alternatives Portfolio holdings.

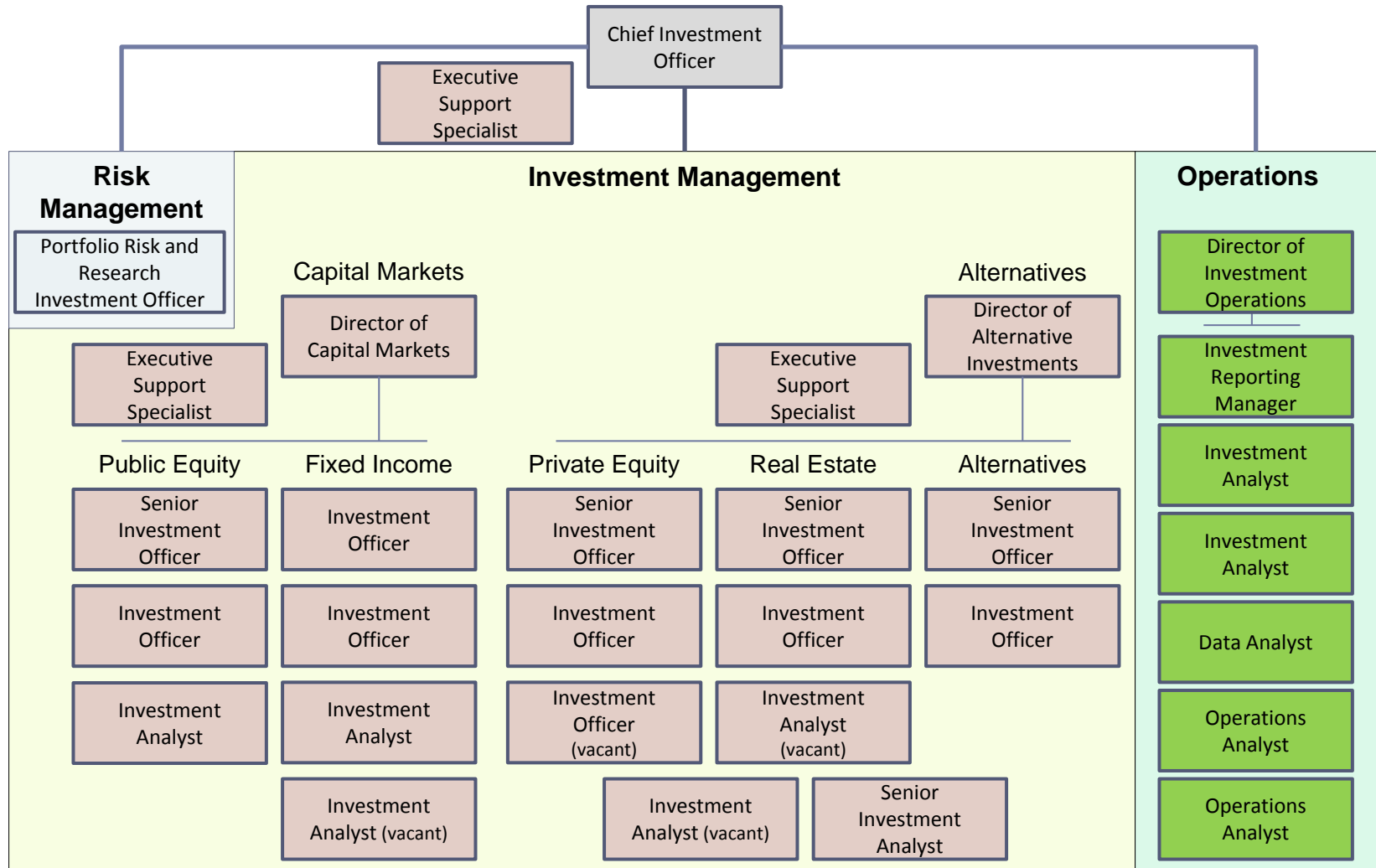
OPERF Performance & Peer Rankings (as of December 31, 2016)

Annualized Return¹	1-Year	3-Year	5-Year	7-Year	10-Year
Russell 3000	12.74%	8.43%	14.67%	12.92%	7.07%
S&P 500	11.96%	8.87%	14.66%	12.83%	6.95%
Russell 2000	21.31%	6.74%	14.46%	13.24%	7.07%
MSCI ACWI ex-US IMI	4.41%	-1.44%	5.35%	3.28%	1.22%
MSCI Emerging Markets	11.19%	-2.55%	1.28%	0.47%	1.84%
Bloomberg Barclays U.S. Aggregate	2.65%	3.03%	2.23%	3.62%	4.34%
Fund Performance (Ranking²)	1-Year	3-Year	5-Year	7-Year	10-Year
OPERF	6.88% (47)	5.40% (9)	9.11% (5)	8.59% (1)	5.47% (1)
Domestic Equity	14.81% (10)	7.73% (61)	14.51% (27)	12.81% (28)	6.94% (21)
International Equity	4.59% (20)	-0.35% (20)	6.90% (16)	4.70% (13)	2.51% (5)
Fixed Income	3.07% (84)	2.37% (78)	3.64% (22)	4.99% (17)	5.27% (13)
Private Equity	6.26% (36)	9.90% (11)	12.03% (1)	12.51% (1)	9.62% (1)
Real Estate	6.58% (78)	10.17% (64)	11.38% (35)	9.81% (66)	5.20% (30)

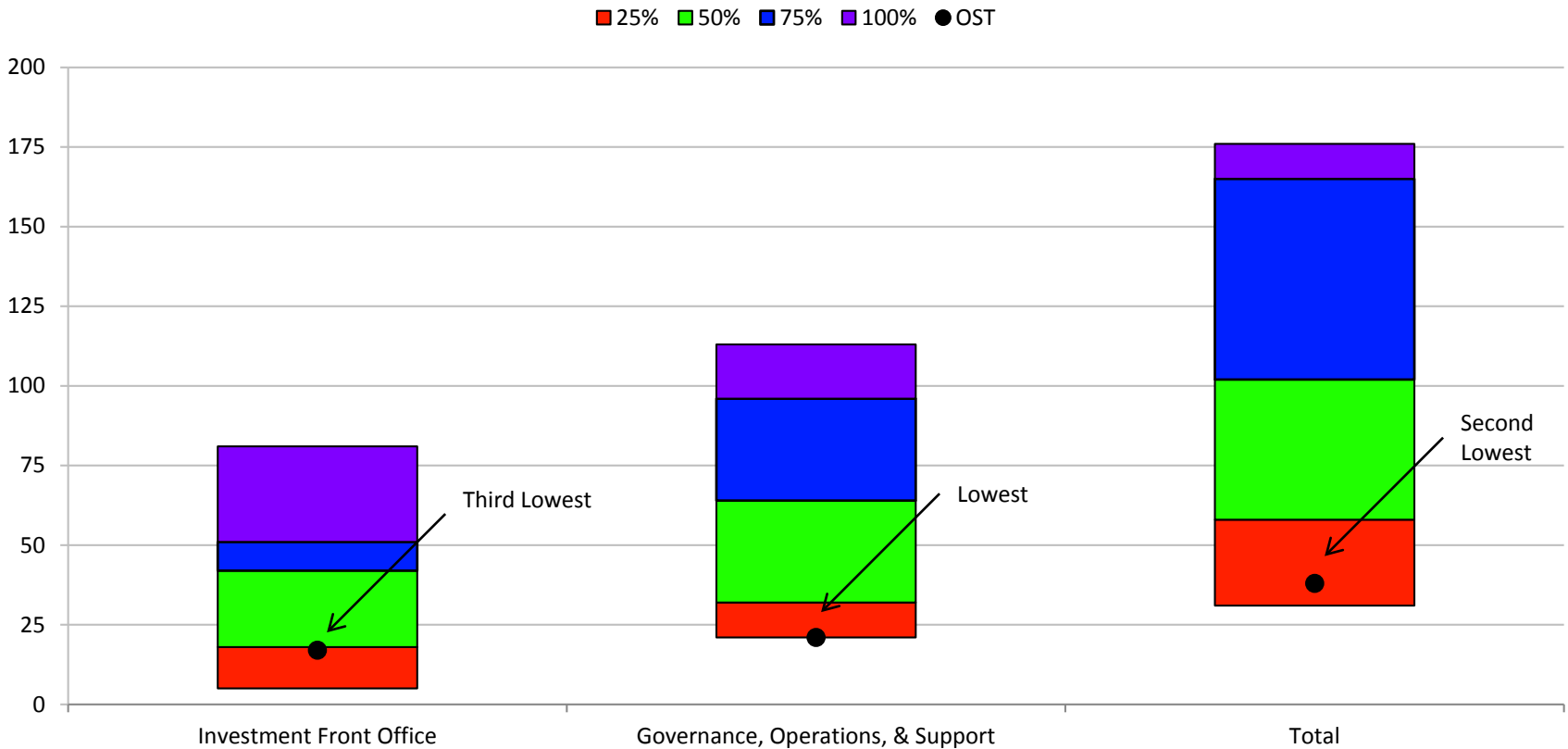
¹ Bloomberg for index returns and levels.

² Relative to Wilshire Trust Universe Comparison Service (TUCS®) Public Funds > \$10 Billion cohort.

OST Investment Division Org Chart



OST Staffing Compared to Peers



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

Source: CEM Benchmarking, November 2016 report.

OST Investment Division 2017 Goals

- ▶ Execute, execute, execute
- ▶ Recruit, hire and assimilate
- ▶ Insource additional fixed income and public equity mandates
- ▶ Maintain momentum and direction of real estate restructuring initiative
- ▶ Continue research in private market focus areas (e.g., portfolio monitoring, benchmarking, performance calculation & risk measurement)
- ▶ Complete currency project and improve integration of ESG and Corporate Governance activities
- ▶ Expand Aladdin use and expertise
- ▶ Advance strategic partnership discussions with one or more key GP/manager relationships



Thank You

John D. Skjervem, CFA
Chief Investment Officer
Oregon State Treasury

March 15, 2017

TAB 3 – 2018 OIC Meeting Schedule

OREGON INVESTMENT COUNCIL

Proposed 2018 Meeting Schedule

Meetings Begin at 9:00 am

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

Thursday, February 1, 2018

Wednesday, March 14, 2018

Wednesday, April 25, 2018

Wednesday, June 6, 2018

Wednesday, August 8, 2018

Wednesday, September 19, 2018

Wednesday, October 31, 2018

Wednesday, December 12, 2018

TAB 4 – Apollo Investment Fund IX, L.P.
OPERF Private Equity Portfolio

Apollo Investment Fund IX, L.P.

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 \$500 million capital commitment to Apollo Investment Fund IX, L.P. (“Apollo IX” or “Fund IX”) as part of the OPERF private equity portfolio. The proposed commitment would represent the continuation of an existing private equity relationship with Apollo Global Management, LLC (“Apollo”, the “Firm” or the “GP”) dating back more than a decade and including \$1 billion of previous commitments.

Background

Founded in 1990, Apollo Global Management is a publicly-traded, global alternative investment manager with approximately \$189 billion of assets under management across three primary business segments (private equity, credit, and real estate) as of September 30, 2016. The Firm continues to be led by founding Managing Partners Leon Black (CEO), Joshua Harris, and Marc Rowan who have worked together for more than 30 years and currently oversee nearly 1,000 employees based in offices in New York, Los Angeles, Houston, London, Hong Kong, Singapore, and Mumbai. This includes 24 Senior Partners and 106 total investment professionals who are focused on the Firm’s global private equity practice. Private equity was Apollo’s original investment platform, and the GP has raised more than \$50 billion across eight funds since inception. The Firm is now targeting at least \$20 billion for Apollo Investment Fund IX as a continuation of the GP’s flagship, global private equity investment practice.

Strategy

Apollo pursues an integrated and disciplined value investment strategy across all investment platforms. In its private equity practice, the GP utilizes a flexible mandate pursuing large scale opportunistic buyouts and build-ups, complex corporate carve-outs, and distressed debt investments. Over the past 26 years, Apollo has developed extensive industry expertise in the financial services, business services, consumer services, chemicals, natural resources, consumer and retail, leisure, manufacturing and industrial, and media and telecom sectors. Apollo’s private equity practice focuses mostly on opportunities in the U.S., and outside of North America the GP generally targets investments in Western European jurisdictions where creditor rights and restructuring processes are well defined and tested. Apollo anticipates that in Fund IX, the GP will create a portfolio of approximately 25-35 investments of \$300 million to \$1.5 billion.

Issues to Consider

Attributes:

- *Solid Long-Term Private Equity Track Record* – Since inception (1990), Apollo’s flagship private equity funds have made investments with a gross total cost basis of \$52 billion. Those investments have generated a gross total value of \$97 billion (1.9 times cost) including \$78 billion of realized proceeds. On a net basis, Apollo has generated an IRR of 25% since inception.
- *Disciplined Value Orientation* – Apollo applies a strict focus on entry valuation as both a risk mitigant and a predictable and controllable lever for upside return potential. From 2001 to 2013, the portfolios for Apollo Investments Funds V (2001), VI (2006) and VII (2008) had creation multiples that were 14-33% below prevailing market multiples for buyouts. Since the inception of Apollo Investment Fund VIII in 2013, Apollo’s discount to the market has expanded to nearly 50% as purchase price multiples have run up significantly for the rest of the industry.
- *Flexible Investment Strategy* – As noted in the strategy section above, Apollo pursues a flexible investment strategy which allows the GP to tactically pursue value across market cycles. Most notably, the GP’s ability to effectively toggle to distressed debt investing during credit cycles is a genuine differentiator relative to the large, global private equity peer set. The “all weather” and

counter-cyclical nature of Apollo's strategy profile is differentiated and additive as compared to most of OPERF's private equity relationships.

Concerns:

- *Target Fund Size* – While Apollo has yet to specify a cap on total commitments, Fund IX is expected to be the largest private equity fund raised since the financial crisis and potentially the largest buyout fund of all time. [Mitigant: At more than \$18 billion of total capital commitments, Apollo Investment Fund VIII is currently the largest fund raised since the global financial crisis. That fund, which commenced operation in late 2013, has been deployed in an increasingly frothy valuation environment. While the investment period to date for Fund VIII has been challenging for value oriented strategies, Staff has been impressed with Apollo's ability to put significant capital to work in new investments while maintaining discipline on entry price in a full priced environment.]
- *Succession* – As noted in the background section above, Apollo continues to be led by three founding Managing Partners who have worked together for 30 years. [Mitigant: Apollo's three Managing Partners remain fully engaged with the business and anticipate remaining so for the foreseeable future. Leon Black is in his mid-60s, but has expressed a desire to remain in his capacity as the Firm's CEO for some time. While Messrs. Harris and Rowan are highly experienced and long-tenured, they are each more than a decade younger than Mr. Black. Further, while Apollo is a large, global alternative investment manager, the Firm continues to be run like an integrated partnership with the senior professionals from all business units collaborating closely. Finally, on a day-to-day basis, the private equity business is run by Scott Kleinman who has been with Apollo for more than 20 years. Mr. Kleinman oversees a team of 20 Senior Partners who are mostly in their mid-40s to mid-50s, and the overall leadership team for private equity averages 17 years at Apollo.]
- *Headline Risk* – As a result of Apollo's proactive pursuit of complex and often distressed investment opportunities, the Firm is commonly involved in high profile bankruptcies and restructurings. At several points in the GP's history, these complicated and sometimes contentious situations have given rise to unfavorable media coverage. [Mitigant: There is no true mitigant for this concern. Apollo's propensity to target challenging situations is directly related to the Firm's core focus on complex, deep value investment opportunities. In such situations, an aggressive posture is taken by the GP to preserve capital and hopefully create value by reorganizing challenged businesses. As a result, some level of headline risk is unavoidable due to the nature of Apollo's strategy. However, Apollo has integrated ESG practices into its investment process and made significant strides in recent years placing greater focus on the impacts the Firm's activities have on broader constituencies.]

Terms

Legal negotiations are not final, but Staff views the proposed terms as in-line with market. Further information on the proposed terms can be found in the TorreyCove materials. Please note that Staff has not had contact with a placement agent on this opportunity.

Conclusion

Staff recommends a capital commitment of up to \$500 million to Apollo Investment Fund IX, L.P. which represents, in Staff's opinion, an attractive, core opportunity for the large buyout segment of the OPERF Private Equity portfolio.



MEMORANDUM

TO: Oregon Public Employees Retirement Fund (“OPERF”)
FROM: TorreyCove Capital Partners (“TorreyCove”)
DATE: March 1, 2017
RE: Apollo Investment Fund IX, L.P. (the “Fund”)

Strategy:

Apollo will deploy a similar contrarian, value-oriented strategy to the prior funds that is flexible in terms of entry points given prevailing market conditions. The Firm focuses on three types of investments – opportunistic buyouts, corporate carve-outs, and distressed debt. As a value-oriented investor, the Firm generally avoids highly competitive situations and “plain vanilla” buyouts, instead focusing on more complex situations such as out-of-favor industries or broken sales processes where the inherent value may be less obvious. During periods of market dislocation and volatility, Apollo will build positions in the distressed debt of what it believes to be “good companies with bad balance sheets” as prices decline. In the depths of the most recent financial crisis, Apollo became one of the most active market participants.

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

Allocation:

A new commitment to the Fund would be allocated 100% to the Large Corporate Finance investment sub-sector. As of the June 30, 2016 report, OPERF’s allocation to Corporate Finance is listed in the table below. It is important to note that since allocation is based on fair market value, a commitment to the Fund would not have an immediate impact on OPERF’s current portfolio allocation. Commitments to the Fund are complementary to OPERF’s existing fund commitments and provide the overall portfolio with a further degree of diversification.

As of September 30, 2016	Target	FMV	FMV + Unfunded
Corporate Finance	60-85%	75.6%	74.5%

Conclusion:

The Fund offers OPERF an opportunity to participate in a differentiated portfolio of private equity 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 \$500 million 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;



TORREYCOVE
CAPITAL PARTNERS

- (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.

TAB 5 – Fixed Income Policy Update

OPERF Fixed Income Portfolio

OPERF Government Strategy Guidelines

Purpose

Provide the Oregon Investment Council (OIC) with an update on OPERF Fixed Income Government strategy and request approval of guideline revisions as recommended by staff.

Background

In 2015, based on staff and consultant recommendations, OIC approved the below-listed set of fixed income strategy targets. Given OPERF's otherwise large allocation to risk-based assets (e.g., public equity, private equity, real estate and alternatives), these fixed income targets were implemented in 2016 to improve total fund liquidity and moderate total fund volatility.

Strategy	Target Allocation	
	Fixed Income	OPERF
Government	37.0%	7.4%
Core	46.0%	9.2%
<u>Non-Core</u>	<u>17.0%</u>	<u>3.4%</u>
OPERF Fixed Income	100.0%	20.0%

OST implemented and activated Blackrock's Aladdin operating platform in 2015 which, among other important features, provides staff with a full suite of fixed income portfolio management capabilities.

- Aladdin Portfolio Management Ecosystem:
 - Aladdin Portfolio Construction (e.g., detailed portfolio analytics, what-if analysis and optimization);
 - Aladdin Green Package and Prism (reporting);
 - Aladdin Portfolio Risk Tool (risk analytics);
 - Aladdin Portfolio Monitor (cash management); and
 - Back- & Middle-Office Services (trade reconciliation and settlement).

OST investment staff currently utilizes Aladdin to manage approximately \$18 billion in fixed income investments across 11 state, state agency, and Oregon local government funds. Moreover, investment staff invests internally-managed funds across a range of fixed income asset types including U.S Treasury and agency debt, corporate and municipal notes and bonds, agency mortgage-backed securities, asset backed securities, and commercial mortgage-backed securities.

Staff now intends to "insource" for internal management the Fixed Income portfolio's Government strategy, an allocation that is currently managed externally and comprised \$5.08 billion or 7.2% of total OPERF capital as of January 31, 2017.

Recommendation

In order to transition the existing OPERF Fixed Income Government strategy to internal management, staff recommends OIC approval of the Fixed Income guideline revisions included herewith as Appendix A.

Appendix A

“GOVERNMENT” STRATEGY INVESTMENT GUIDELINES

I. Scope

These rules apply to certain investment assets of the Oregon Public Employees Retirement Fund (hereafter referred to as the “Fund”). On an annual basis, the Oregon Investment Council (“OIC” or “Council”) assesses asset allocation guidelines for the Fund’s approved investment categories.

The Oregon State Treasury Investment Division (“Manager”) shall acquire and manage a fixed income government securities portfolio as described herein and reinvest the sales and income proceeds of that portfolio on behalf of the Fund.

II. Investment Objective

A. Manager Role and Performance Expectations. The Manager, as retained by the Council, shall invest with a primary objective of capital preservation and consistent with normal fixed income management risks. The Manager’s secondary objective shall be to generate a rate of return from fixed income securities equal to the Barclays Capital U.S. Treasury Index (the “Benchmark”) net of all costs and fees over the course of a normal market cycle. Specifically, the Council expects the Manager’s performance, net of fees, to match the Benchmark return over a three- to five-year investment period.

B. Manager Style. The Manager, as retained by the Council, may utilize a limited active management style including, but not limited to, a combination of quantitative and subjective valuation techniques designed to add value over the Benchmark.

III. Guidelines

- A. Eligible Securities. Securities eligible for investment include the following:
- (i) Securities issued by agencies and instrumentalities of the U.S. Government;
 - (ii) State Street Short-Term Investment Fund (STIF);
 - (iii) Oregon Short-Term Fund;
 - (iv) U.S. Treasury exchange-traded funds (“ETFs”); and
 - (v) Exchange-traded U.S. Treasury Futures.

Should a particular asset not listed above be included in the Benchmark, that asset will also be deemed an eligible investment.

- B. Duration. Manager shall invest the Fund consistent with the Benchmark’s overall duration profile. Duration at the portfolio level will be limited to the Benchmark, ± 10 percent. The Manager shall invest the portfolio consistent with target duration bands of ± 10 percent relative to the partial or key rate durations (KRD) of the Benchmark’s three segments, defined as follows:
- (i) Short Term: ± 10 percent of duration relative to the Benchmark in the 1-5 year segment;
 - (ii) Intermediate: ± 10 percent of duration relative to the Benchmark in the 5-10 year

Appendix A

“GOVERNMENT” STRATEGY INVESTMENT GUIDELINES

segment; and

- (iii) Long Term: ± 10 Percent of duration relative to the Benchmark in the greater than 10-year segment.

- C. Credit Criteria. In addition to the eligibility requirements defined elsewhere in this agreement, Benchmark methodologies shall be used to determine the appropriate rating for any portfolio holding.

For securities or instruments such as newly-issued bonds, expected ratings may be used until actual ratings are issued and assigned by the rating agencies. In such cases, securities or instruments may be purchased in anticipation of rating assignments that comply (or are expected to comply) with these investment guidelines. Should the actual rating assigned to a security or instrument diverge from the expected rating, a breach of these investment guidelines will not be deemed or determined.

Securities only assigned a short-term rating shall be rated at the U.S. Federal Government equivalent or higher.

The minimum-weighted, average credit quality of the Manager's Fund allocation shall be the U.S. Federal Government equivalent or higher.

- D. Exposure Constraints. Investments shall be constrained as follows:
 - (i) Maximum of 10% of the Fund in U.S. Treasury Exchange Traded Futures.
- E. Absolute Restrictions. The following types of investments are prohibited:
 - (i) Short sales of cash securities;
 - (ii) Non-USD denominated investments;
 - (iii) Margin purchases, lending or borrowing or other uses of leverage or derivatives to create positions greater than 100% of the market value of assets under management;
 - (iv) Interest-rate derivatives (e.g., swaps, options);
 - (v) Securities convertible to equity or equity-like instruments; and
 - (vi) Commodities or common stocks.
- F. Tax Status. Fund earnings are exempt from taxation; therefore, tax considerations are not a constraint on investment management decisions.
- G. Liquidity Needs. All investment income and sales proceeds shall be reinvested by the Manager.

IV. PERFORMANCE MEASUREMENT

- A. Time Horizon. Expected performance results shall be achieved over a full market cycle as generally defined by a consecutive, three- to five-year period.

TAB 6 – Securities Lending Update
OPERF/SAIF/CSF/OSTF/Agency Accounts

Annual Securities Lending Report

Purpose

To provide the Oregon Investment Council (OIC) an update and review of the securities lending program in place for OPERF, OSTF and other state agency funds.

Background

In accordance with INV 216: Securities Lending (attached), the investment division may lend securities through an agent lender. The Oregon State Treasury (OST) has participated in securities lending arrangements dating back decades. The current relationship with State Street Bank as agent lender began in 1997. Over the past 20 years, OIC-managed accounts have realized over \$425 million in net earnings from the OST securities lending program.

In 2016, and for all funds participating in the OST securities lending program, the “average on loan” was \$3.3 billion, with OPERF comprising 75% of that average. Moreover, the OPERF “legacy assets” securities lending fund (established in 2010 with over \$2 billion of program collateral) has been further reduced over the past year from approximately \$56 million to \$28 million as of January 2017.

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

Discussion

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

Recommendation

None, information only.



Origination: 04/2007
Last Approved: 10/2016
Last Revised: 10/2016
Next Review: 10/2017
Owner: *John Skjervem: Chief Investment Officer*
Policy Area: *Investments*
References: *OST Policy 4.01.20*

INV 216: Securities Lending

OREGON INVESTMENT COUNCIL POLICY

INTRODUCTION & OVERVIEW

Summary Policy Statement

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

Applicability

Classified represented, management service, unclassified executive service

POLICY PROVISIONS

Policy Statements

1. Recognizing that securities lending activities may provide incremental return to investment fund portfolios:
 - a. The Agent shall reinvest all cash collateral received consistent with risk and return attributes and reinvestment guidelines approved by the OST Chief Investment Officer (CIO);
 - b. Acceptable collateral investments shall be documented with the Agent in advance of any lending activity;

- c. Collateral reinvestment guidelines for the Oregon Short Term Fund shall be presented to and reviewed by the Oregon Short Term Fund Board prior to CIO approval;
 - d. Any changes to securities lending reinvestment guidelines shall be reported to the OIC at the next regularly-scheduled OIC meeting following the change(s);
2. OST staff shall ensure that securities loaned do not compromise investment fund managers' ability to liquidate fund portfolio positions when necessary; and
 3. OST Investment Accounting staff shall ensure that securities lending income is properly credited to the individual investment fund accounts.

Exceptions

None.

Failure to Comply

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

PROCEDURES and FORMS
ADMINISTRATION

Feedback

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

Attachments:

No Attachments

Approval Signatures

Step Description	Approver	Date
Oregon Investment Council	John Skjervem: Chief Investment Officer	10/2016
	Kim Olson: Policy Analyst	10/2016
	John Skjervem: Chief Investment Officer	10/2016

Oregon Investment Council

Securities Finance Program Review
March 15, 2017

Johnson Shum



STATE STREET

Market Update



Market Update

- The **regulatory environment** continues to impact our industry
 - Agents and prime brokers are looking at ways to adjust their programs while at the same time continuing to maintain their level of product and service delivery
 - The focus is on increased capital efficiency, lower reliance on short term financing and containing balance sheet leverage
 - Pressure on borrowers to reduce balance growth is impacting activity levels
- The uncertainty remains in the number of **future FOMC interest rate hikes**, and the relationship/impact between the various benchmark rates.
 - Increased funding costs for US Treasuries/Agencies, while LIBOR spreads for short term paper have widened
- **Volatility** in short term rates at month-ends and quarter-ends.
 - Lack of traditional (US Treasuries/Agencies) collateral for repo driving demand for term non-traditional (equity) repo collateral
- There will be **opportunities** for asset owners that can meet the pockets of demand
 - Longer allowable WAL may match up with issuer maturity requirements
 - Non-cash flexibility will be increasingly attractive to borrowers, as will term trades. Japanese yen (JPY) cash, Japanese Government Bond (JGB) and Korean Government Bond (KGB) collateral trades are in focus with dealers.
 - Emerging markets with a non-standard structure such as Brazil (CCP), Taiwan and Malaysia (trade pre-notification) may generate incremental revenues.

State Street Securities Lending Program



**Performance
Review**

Relationship Summary

- Earnings Overview
 - \$393.4M* in securities lending revenue for Oregon State Treasury since 2001
- Cash Collateral
 - Separate accounts for Oregon PERS Funds and Oregon Non – PERS Funds managed by SSGA with same custom investment guidelines as Oregon Short - Term Fund (changed January 1, 2014)
- Non-Cash Collateral
 - US Treasury and US Agency Bonds, Sovereign Debt
- Approved Borrowers
 - Oregon PERS Funds - State Street approved Borrowers list
 - Oregon Non – PERS Funds - Fed Primary Dealers list
- Program Parameters
 - Limits: 20% per Borrower
- Borrower Default Indemnification provided by State Street

* As of December 31, 2016

Source: my.statestreet.com

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

Securities Lending Performance

State of Oregon - All Accounts Performance

	2013	2014	2015	2016	2015 vs. 2016
Average Lendable Assets (\$)	42,299,213,445	46,572,386,792	46,873,315,429	46,860,853,506	-0.03%
Average On Loan (\$)	4,293,581,321	4,624,330,337	3,862,547,304	3,345,928,200	-13.38%
Utilization	10.15%	9.93%	8.24%	7.14%	-13.35%
Earnings by Program (\$)					
US Equity	5,326,497	5,475,584	6,432,435	6,011,253	-6.55%
US Corporate Bond	1,797,883	1,134,885	1,199,884	998,690	-16.77%
US Government	2,021,586	2,298,079	1,052,336	1,504,167	42.94%
Non-US Equity	6,616,827	6,040,817	4,833,880	5,313,485	9.92%
Non-US Fixed Income	184,900	79,592	53,843	27,893	-48.20%
Total Earnings (\$)	15,947,694	15,028,958	13,572,378	13,855,487	2.09%
Components of Spread (bps)					
Demand Spread	37	35	45	47	4.40%
Reinvestment Spread	13	10	10	16	68.56%
Net Spread	50	44	55	63	15.79%
Non-Cash Collateral Spread (bps)	26	26	29	31	8.88%
Return to Lendable Assets (bps)	3.8	3.2	2.9	3.0	2.11%

Notes:

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

Securities Lending Performance

State of Oregon - PERS Performance

	2013	2014	2015	2016	2015 vs. 2016
Average Lendable Assets (\$)	26,965,868,075	29,957,224,725	29,691,967,014	29,289,150,404	-1.36%
Average On Loan (\$)	3,153,322,243	3,407,053,731	2,776,953,944	2,518,154,606	-9.32%
Utilization	11.69%	11.37%	9.35%	8.60%	-8.07%
Earnings by Program (\$)					
US Equity	5,287,457	5,366,675	6,374,287	5,951,586	-6.63%
US Corporate Bond	1,257,944	693,662	625,657	445,389	-28.81%
US Government	972,882	1,306,159	449,063	721,885	60.75%
Non-US Equity	6,323,999	5,834,749	4,634,822	5,047,557	8.91%
Non-US Fixed Income	184,900	79,592	53,843	27,893	-48.20%
Total Earnings (\$)	14,027,182	13,280,836	12,137,671	12,194,309	0.47%
Components of Spread (bps)					
Demand Spread	47	44	60	62	2.45%
Reinvestment Spread	13	9	10	16	57.51%
Net Spread	60	53	70	77	10.22%
Non-Cash Collateral Spread (bps)	29	33	34	34	0.09%
Return to Lendable Assets (bps)	5.2	4.4	4.1	4.2	1.85%

Notes:

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

Securities Lending Performance

State of Oregon - Non - PERS Performance

	2013	2014	2015	2016	2015 vs. 2016
Average Lendable Assets (\$)	15,333,345,370	16,615,162,067	17,181,348,415	17,571,703,102	2.27%
Average On Loan (\$)	1,140,259,078	1,217,276,606	1,085,593,360	827,773,594	-23.75%
Utilization	7.44%	7.33%	6.32%	4.71%	-25.44%
Earnings by Program (\$)					
US Equity	39,040	108,909	58,148	59,667	2.61%
US Corporate Bond	539,939	441,223	574,227	553,301	-3.64%
US Government	1,048,704	991,920	603,274	782,283	29.67%
Non-US Equity	292,828	206,069	199,057	265,928	33.59%
Non-US Fixed Income	-	-	-	-	-
Total Earnings (\$)	1,920,511	1,748,121	1,434,706	1,661,178	15.79%
Components of Spread (bps)					
Demand Spread	8	9	9	11	24.23%
Reinvestment Spread	12	11	9	18	96.24%
Net Spread	20	20	19	30	60.49%
Non-Cash Collateral Spread (bps)	10	9	14	17	19.52%
Return to Lendable Assets (bps)	1.3	1.1	0.8	0.9	13.21%

Notes:

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

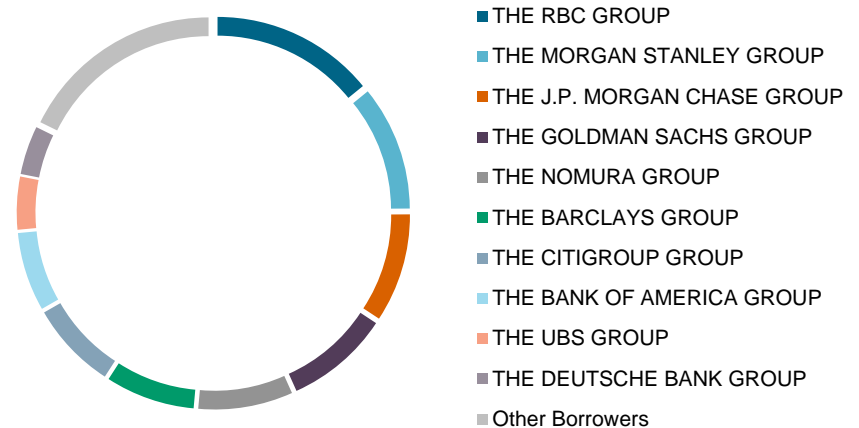
Borrower Diversification

State of Oregon Borrower Diversification

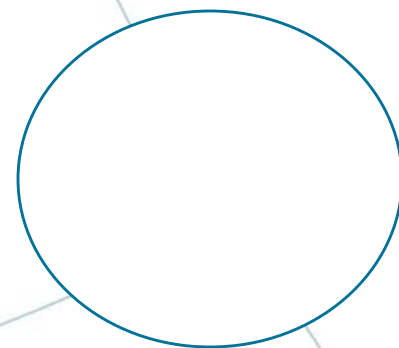
Borrower	On-Loan Market Value	% of Total
THE RBC GROUP	428,498,567	14%
THE MORGAN STANLEY GROUP	326,790,603	11%
THE J.P. MORGAN CHASE GROUP	284,216,765	9%
THE GOLDMAN SACHS GROUP	272,746,199	9%
THE NOMURA GROUP	247,556,094	8%
THE BARCLAYS GROUP	233,879,859	8%
THE CITIGROUP GROUP	229,679,735	8%
THE BANK OF AMERICA GROUP	206,195,791	7%
THE UBS GROUP	138,000,206	5%
THE DEUTSCHE BANK GROUP	127,493,964	4%
Other Borrowers	537,551,099	18%
Total	3,032,608,883	100%

Notes:

- (1) Based Currency (USD) Loan balance as of: December 31, 2016
- (2) Data represents past performance and is not a guarantee of future results
- (3) Data Source: Securities Finance Business Intelligence



Appendix

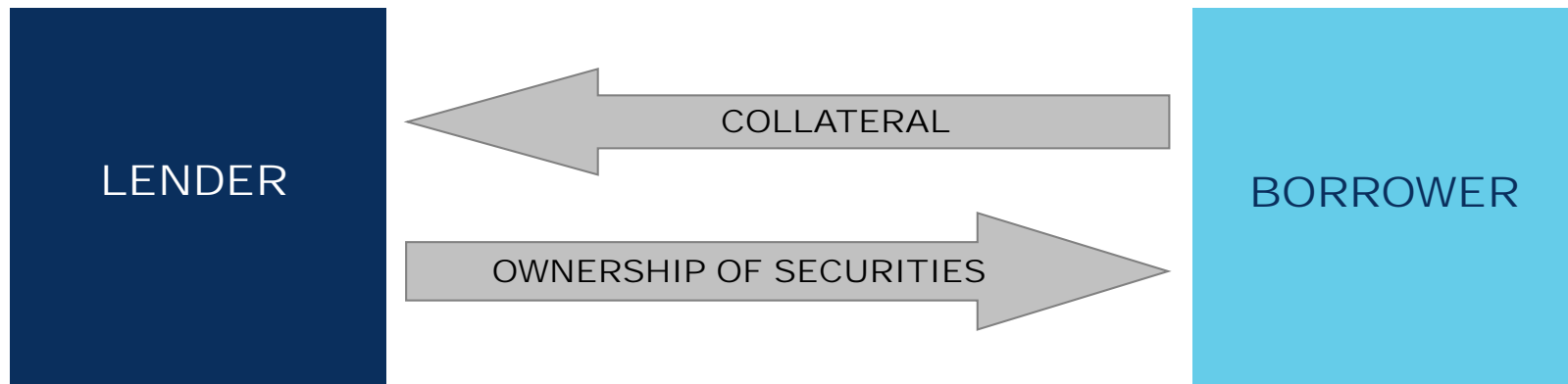


Securities Finance 101



Securities Finance Defined

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



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

Benefits of Securities Finance

- Many clients are supporters of securities lending, appreciating:
 - Revenue that can be used to offset custodial fees and service
 - Additional alpha it generates
 - The liquidity and price discovery benefits that securities lending provides the markets
- Increasingly, securities lending is being used as a way to:
 - Generate liquidity
 - Lower the cost of leverage
 - A means to raise cash to collateralize derivatives

Fundamentals of Securities Finance

Transaction Basics / Demand Drivers

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

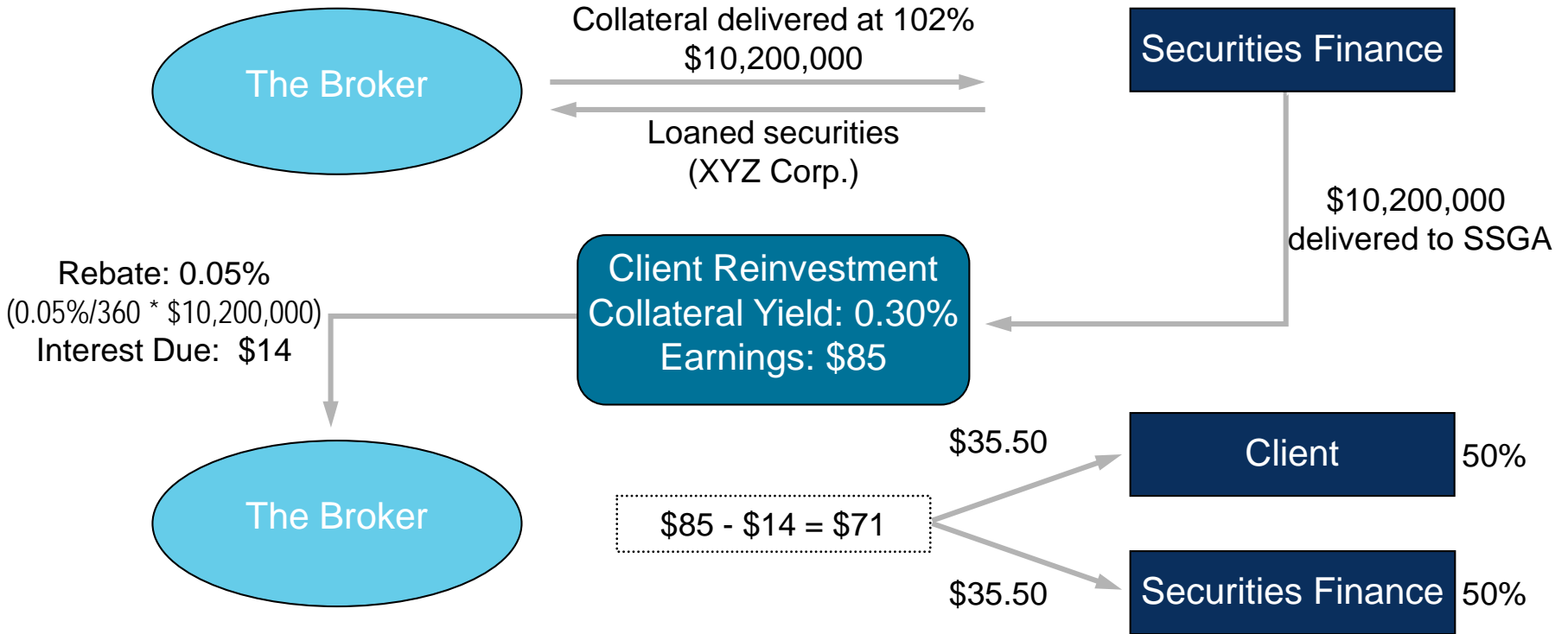
Fundamentals of Securities Finance

One Day Sample Transaction

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

Fundamentals of Securities Finance

One Day Sample Transaction Diagram – Cash Collateral



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

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

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

Collateral Yield and Rebate Rate are annualized

OBFR – Overnight Banking Funding Rate

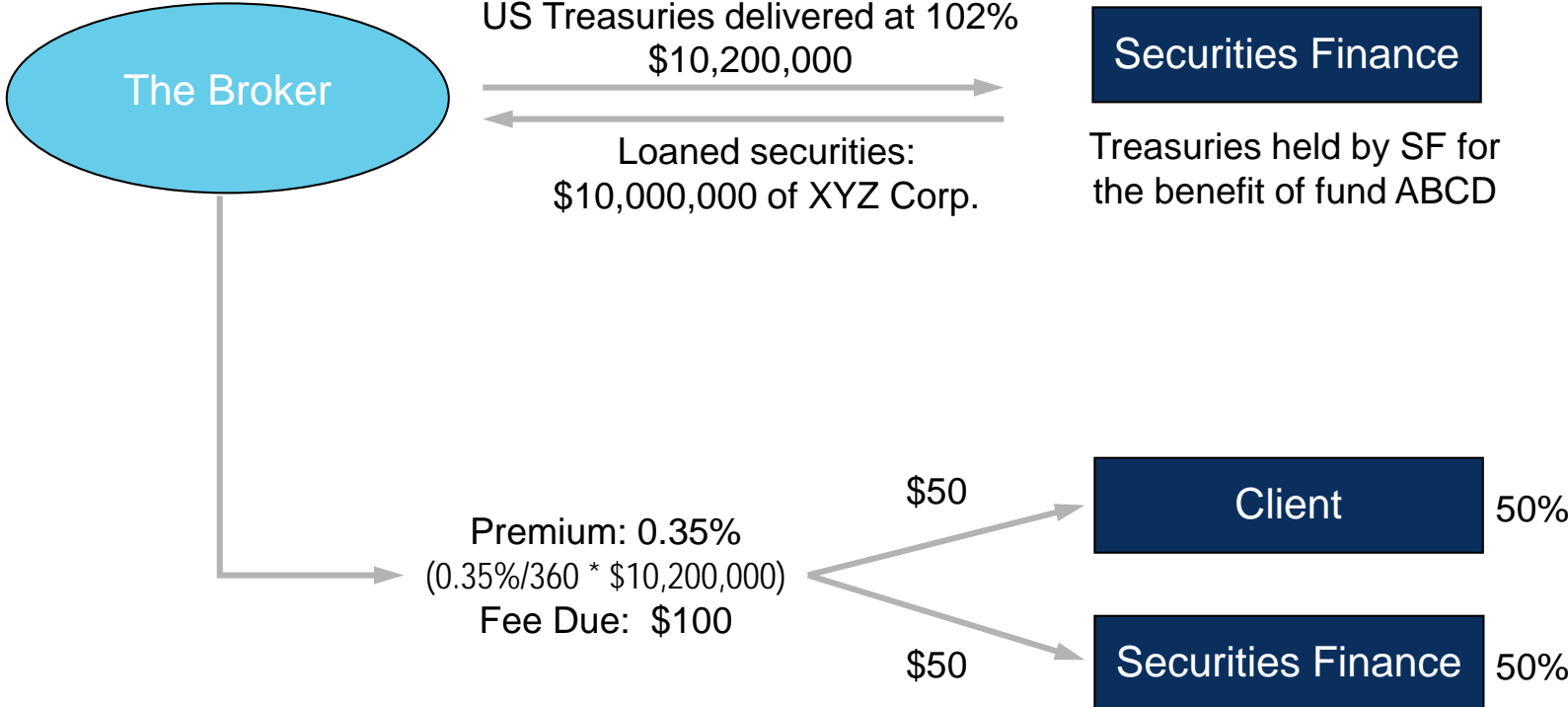
Fundamentals of Securities Finance

One Day Sample Transaction – Non-Cash Collateral

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

Fundamentals of Securities Finance

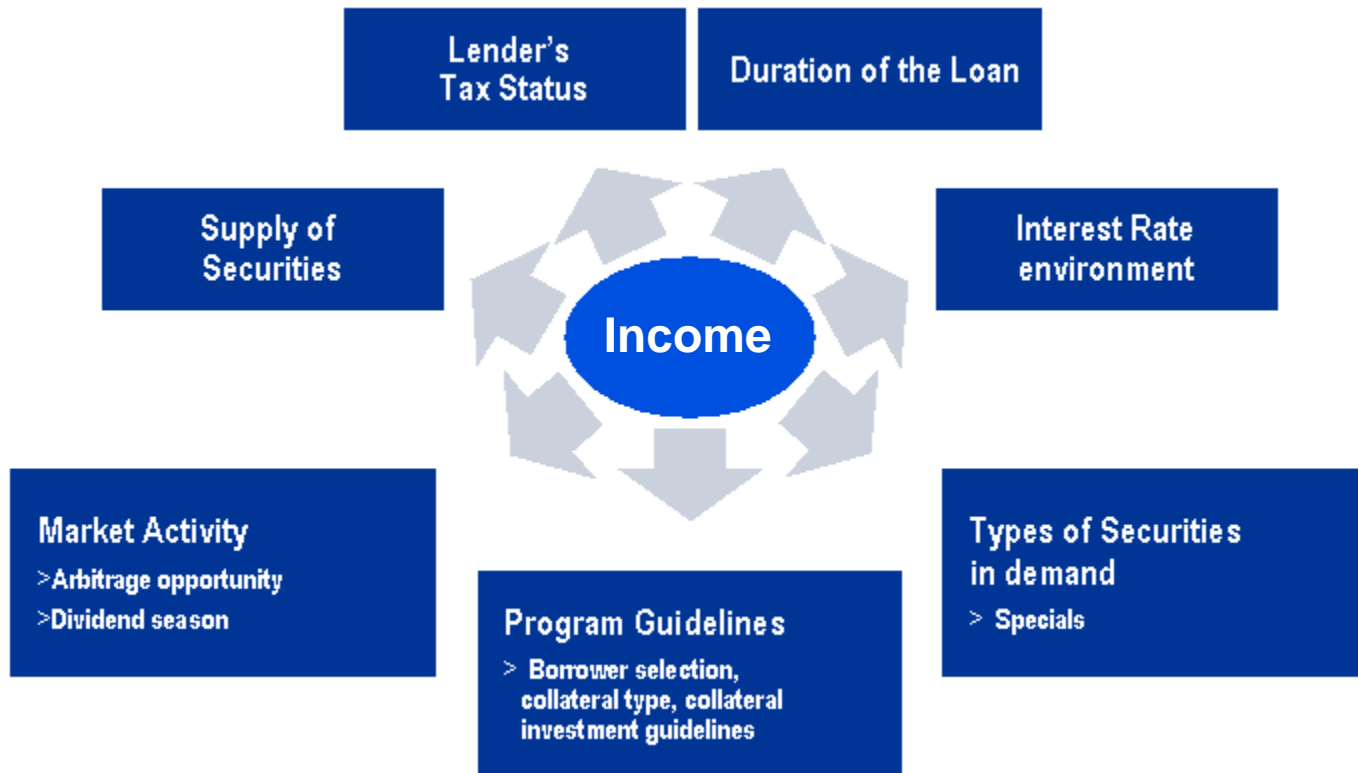
One Day Sample Transaction Diagram – Non-Cash Collateral (US Treasuries)



Premium rate annualized using a 360-day basis.

Fundamentals of Securities Finance

Factors Affecting Income



Securities Finance

What are the major risks and mitigating factors?

Credit Risk

State Street controls the quality of its **approved borrower list** and monitors all borrowers daily against credit limits approved by Enterprise Risk.

The optional borrower default **indemnity** transfers credit risk to State Street Bank & Trust Co which is rated AA- by S&P.

Market Risk

State Street **marks to market** all loans and collateral daily, takes a positive margin on collateral, and monitors Value at Risk (VaR).

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

Ops Risk

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

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

Legal Risk

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

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

Reinvest Risk

Cash collateral is managed by **State Street Global Advisors**, one of the world's largest cash managers with over \$366 billion under management.*

State Street's optional borrower default indemnity **does not cover cash collateral** and clients should ensure that their reinvestment policy is appropriate.

State Street Securities Finance Program Overview

*State Street's securities finance program launched in 1974 and is now the largest agency lending program in the world by asset and loan value.**

The program was ranked #1 in the 2015 Global Investor ISF Equity Lending Survey as well as the most innovative custodial lender.

42 years of experience in securities finance **#1** agent lender globally by asset and loan value*

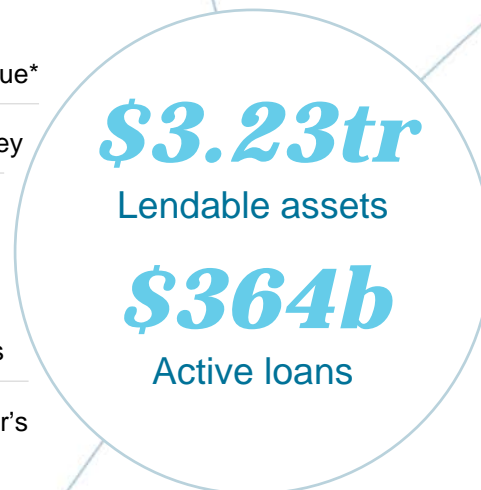
\$3.23 trillion of lendable assets **#1** in the 2015 Global Investor ISF Equity Lending Survey

\$364 billion of active loans **SSGA** experience in cash collateral management

36 security markets for equities and fixed income **9** regional offices with **5** trading desks

272 active clients, **44** approved jurisdictions **246** dedicated employees

133 borrowers, **16** approved jurisdictions **AA-** rating from Standard & Poor's



"State Street was the best Group 1 lender in the 2015 survey. It had across-the-board winning positions globally as well as in every region."
2015 Global Investor ISF Equity Lending Survey

Benefits of Securities Finance Participation via State Street

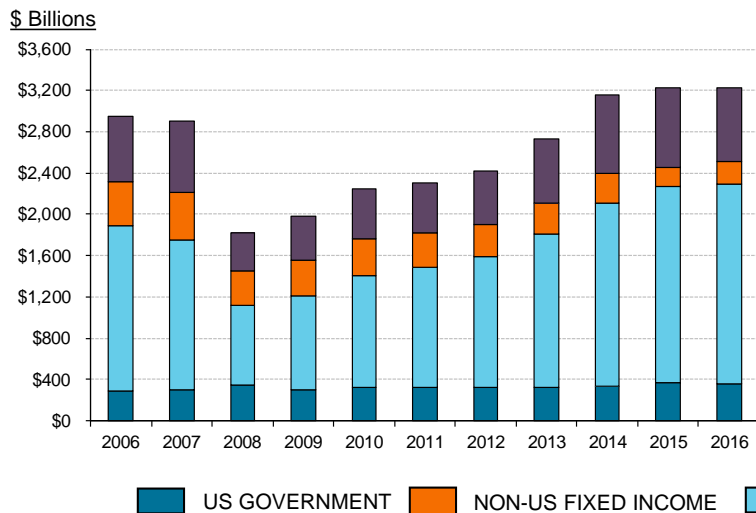
246 employees* solely **dedicated to managing all aspects of the lending business** (Risk, Operations, Legal, Tax, Technology, Product Development, etc.)

The **size of our program minimizes operational disruptions** and our stable supply of “specials” balances provides pricing power with borrower

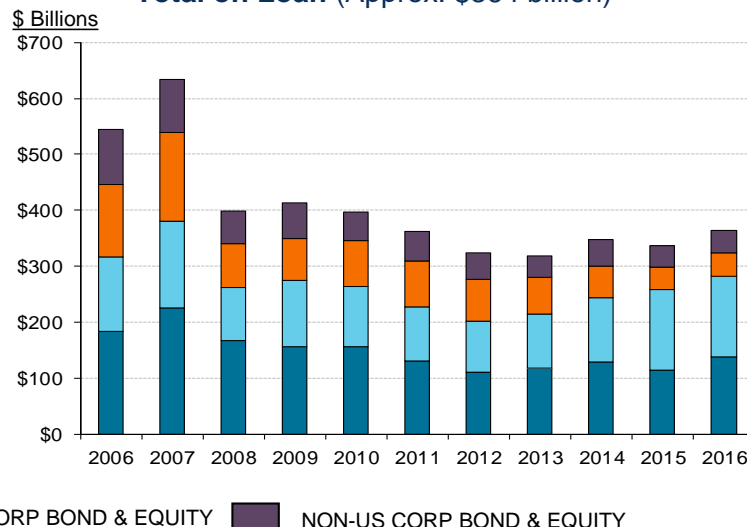
Securities Finance is a **core product**, not an ancillary service, thus State Street commits a significant amount of capital to Securities Finance

A recognized **leader in the evolving regulatory environment** and its impact on the financing industry. Currently have employees serving on several industry Boards including the RMA, ISLA, ICI, SIFMA & Others

Lendable Assets (Approx. \$3.23 trillion)*



Total on Loan (Approx. \$364 billion)*



Glossary

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

Glossary

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

Biography



Johnson Shum
Vice President

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

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

Mr. Shum has more than 19 years experience in the financial services industry, specifically in client services and product management. He holds a Bachelor of Arts degree in international business from the State University of New York at Buffalo.

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

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Recipients should be aware of the risks of participating in securities lending, which may include counterparty, collateral, investment loss, tax and accounting risks. A securities lending program description and risks statement is available.

Past performance is no guarantee of future results.

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Oregon Investment Council

Robert T. Jackson

March 15, 2017

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Table of Contents

1. SSGA Cash Management Overview
2. Global Credit Research Overview

Appendices

Appendix A: Important Disclosures

Appendix B: Biography

The information contained in this document is current as of the date presented unless otherwise noted.

SSGA Cash Management Overview

Key Differentiators

Over \$348B AUM

One of the largest cash investment managers globally

30 Years of Experience

Solutions Across Cash Spectrum*

SCALE

Largest actively managed asset class at SSGA**

Competitively Priced

Flexible Solutions

CREDIT

Dedicated Credit Research Team

Principle Preservation Paramount

Limit Rating Volatility

SMAs

\$117B AUM

Duration tailored to client cash flows

Facilitates new market entry and acquisitions

Source: ssga.com/cash.

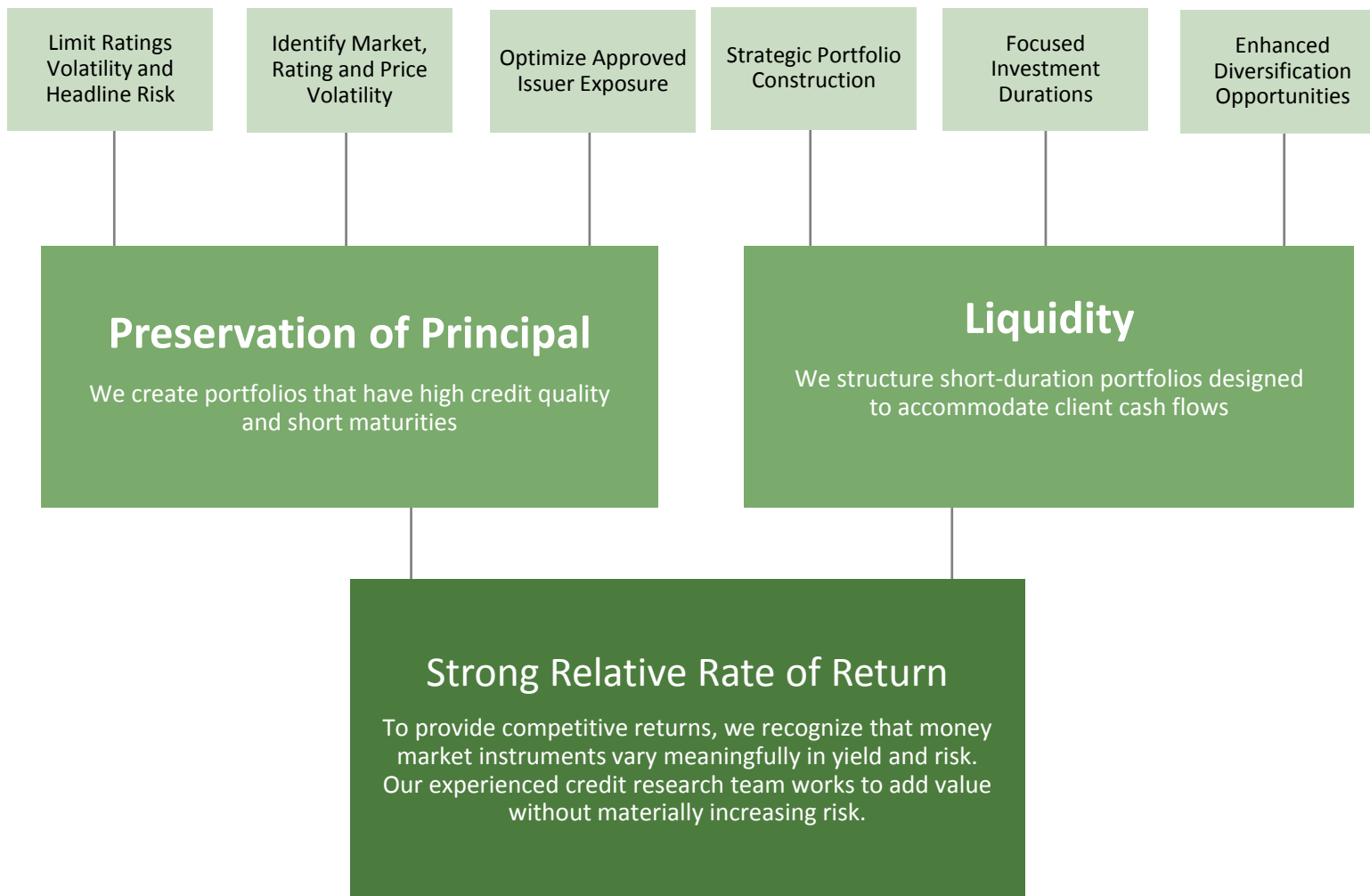
As of December 31, 2016.

* Multicurrency money market funds, customized separately managed accounts, custodial sweep accounts and commingled cash funds.

** Over 15% of the firm's total assets under management in cash.

SSGA Cash Management Philosophy

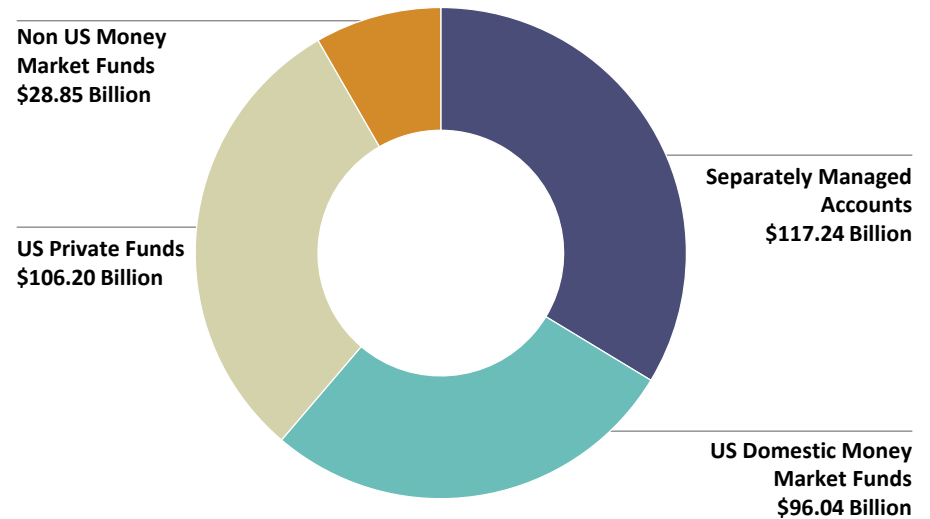
We believe there are **two** fundamental objectives that guide cash management:



SSGA Global Cash AUM and Competitive Advantages

\$348.33 Billion* in Global Cash Assets

As of December 31, 2016



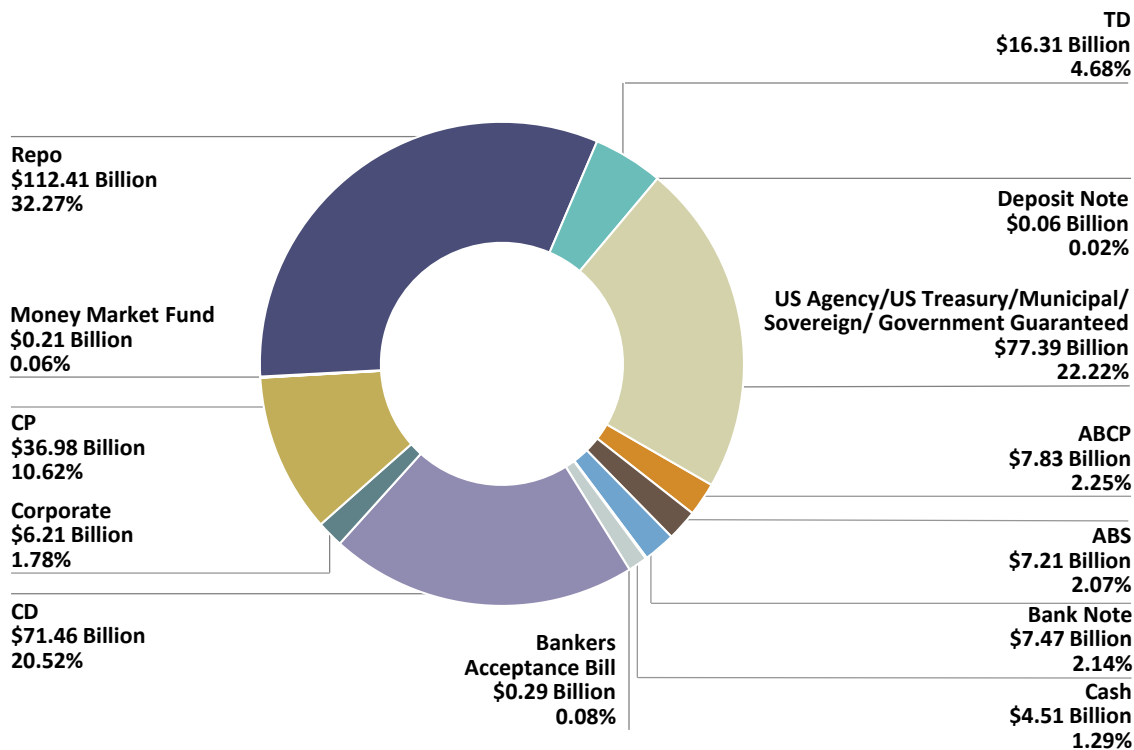
* Includes Cash and Lending. All umbrella funds and as of funds assets have been removed from the calculations. Global Fixed Income assets under management include those Strategies managed by SSGA's Asset Allocation Team. All calculations are unaudited. Numbers are based on Par Value of the underlying securities (converted to USD). Numbers do not include Fund of Fund positions in SSGA managed money market funds. Investing involves risk including the risk of loss of principal.

Source: SSGA Assets Under Management Reporting System.

SSGA Global Cash Management AUM by Security Type

\$348.33 Billion AUM by Security Type

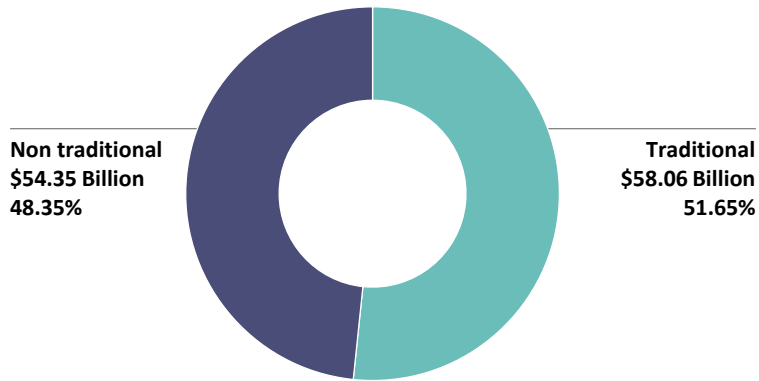
As of December 31, 2016



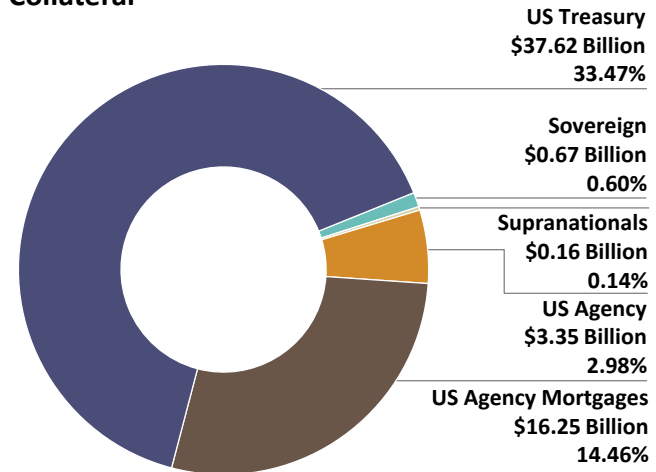
Source: Bloomberg Finance L.P., SSGA

SSGA Repo Collateral Allocation

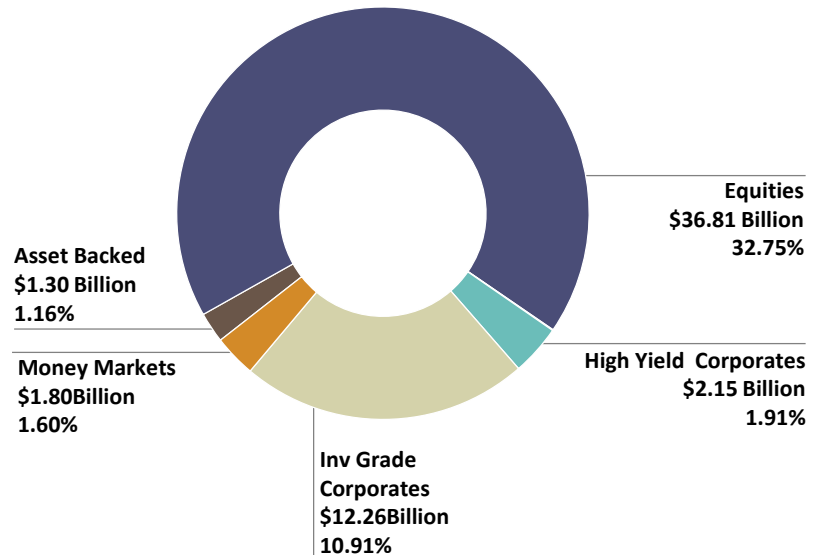
US\$112.41 Billion of Total Repurchase Agreements



Traditional Collateral



Nontraditional Collateral



Source: SSGA. As of December 31, 2016.
The information contained above is for illustrative purposes only.

Fixed Income, Cash and Currency Organization

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Global CIO, Fixed Income, Cash and Currency (FICC)

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Rates and Sector Strategy

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Jay Ladieu
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Matthew Pappas

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Ling Luo, CFA, FRM
Alan Wilson

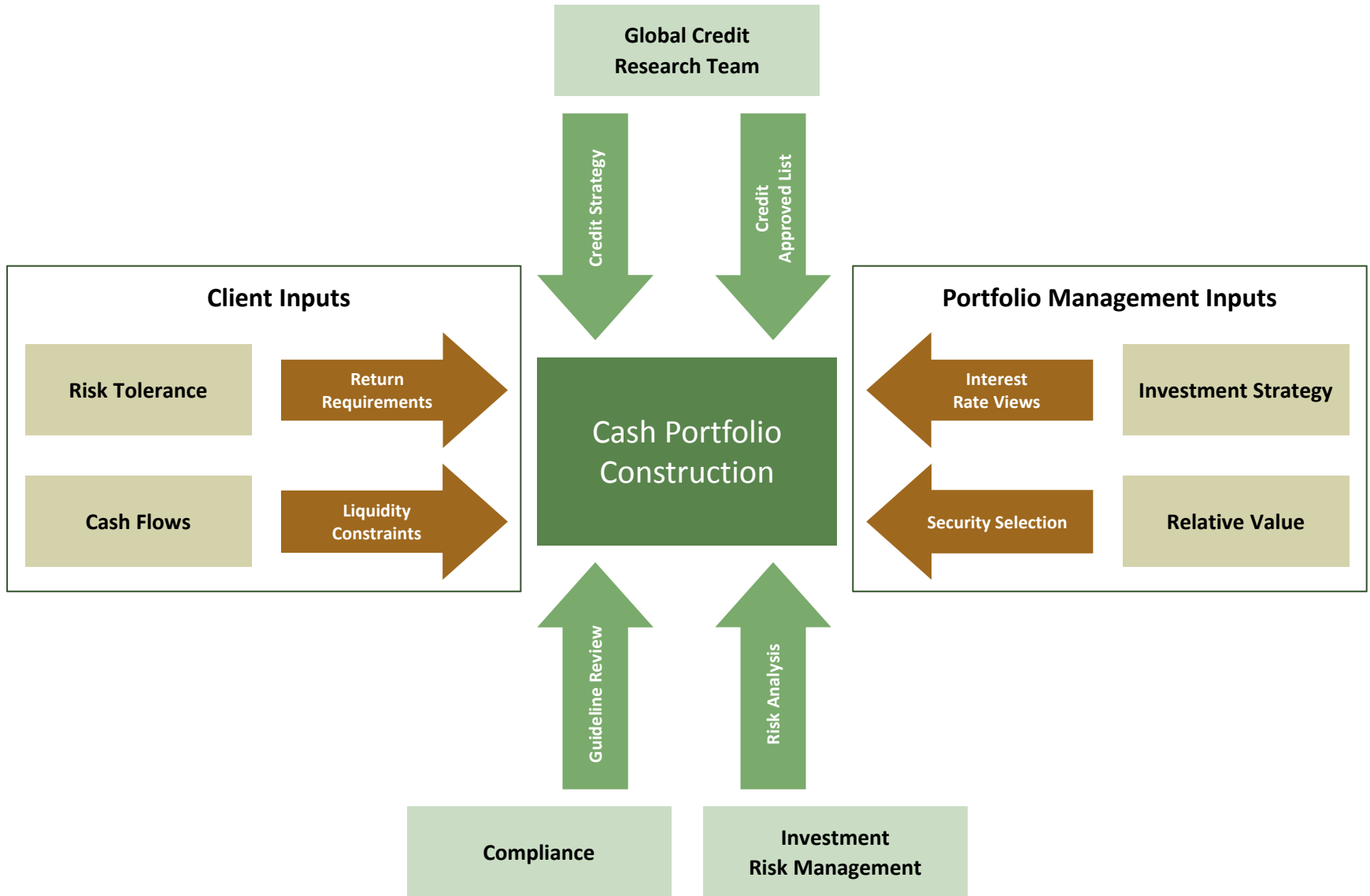
DUBLIN
Brendan Lardner
Barry McAndrew, CFA

As of January 13, 2017

* Matrix reporting to CIO.

+ Direct report to Stephen Yeats, Matrix report to Ritirupa Samanta, ** Direct report to Patrick Bresnehan, Matrix report to Ritirupa Samanta, *** Direct report to Stephen Yeats.

Portfolio Construction for Global Cash



The information contained above is for illustrative purposes only.

Global Credit Research Overview

Oregon State Treasury

All the information contained in this presentation is as of date indicated unless otherwise noted.

Global Credit Research Team

Global Credit Research Team Members

Name	Location	Position	Years of Credit Experience
Peter Hajjar	Boston	Head of Global Credit Research	15
Mi Lin Chen	Boston	Senior Analyst	10
Ralph Livermore	Boston	Analyst	9
Michael Madden, FRM	Boston	Senior Analyst	12
Attilio (AJ) Qualtieri	Boston	Senior Analyst	10
Perry Siriyatorn	London	Senior Analyst	24

- 6 analysts deployed exclusively to the credit research effort covering financials, corporates/industrials, and structured finance
- Currently recruiting for another analyst in London
- Global research platform with analysts located in Boston and London
- Team focus and coverage are structured primarily for Global Cash Management

As of January 31, 2017

Global Credit Research Overview

Credit Research — Pillar to Global Cash Management

Independent Fundamental Research

Analyst team structure separate from Global Cash PMs

No reliance on 3rd parties for credit decisions

Credit research process specific for Global Cash

Significant levels of technology investment

Breadth and depth of credit research

Most analysts have been with the credit team for at least 8 years

Team has experience working through a credit cycle

Analyst structure leverages across their respective sector experience

Global Scope and Sizeable Scale

Nearly \$400B of credit assets under review

Large market positions in a number of asset classes

Access to senior management; first look at new structures; reverse inquiries

Strong Oversight and Controls

Formal surveillance process for assets held in Global Cash

Multiple layers of risk management

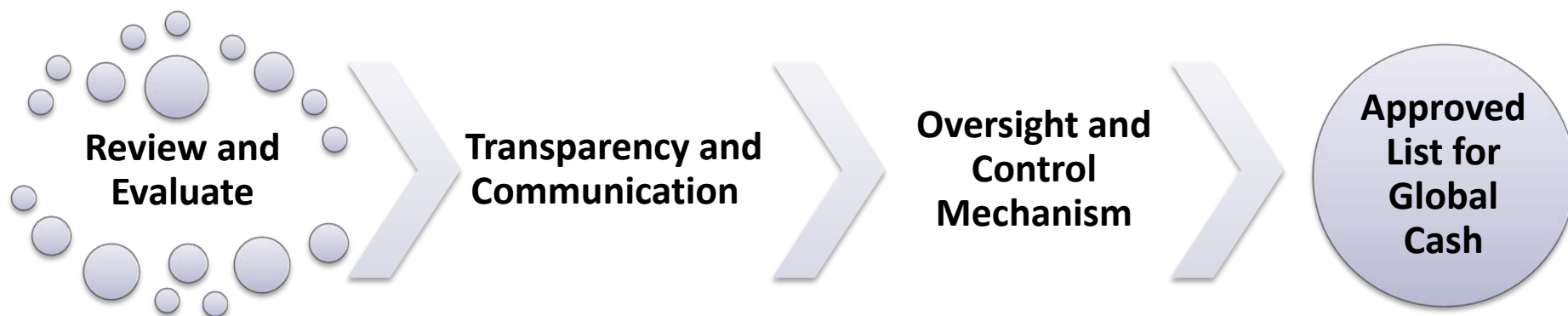
Automated and auditable workflow tools

Provide transparency and timely communication of credit decisions

As of January 31, 2017

Global Credit Research Process

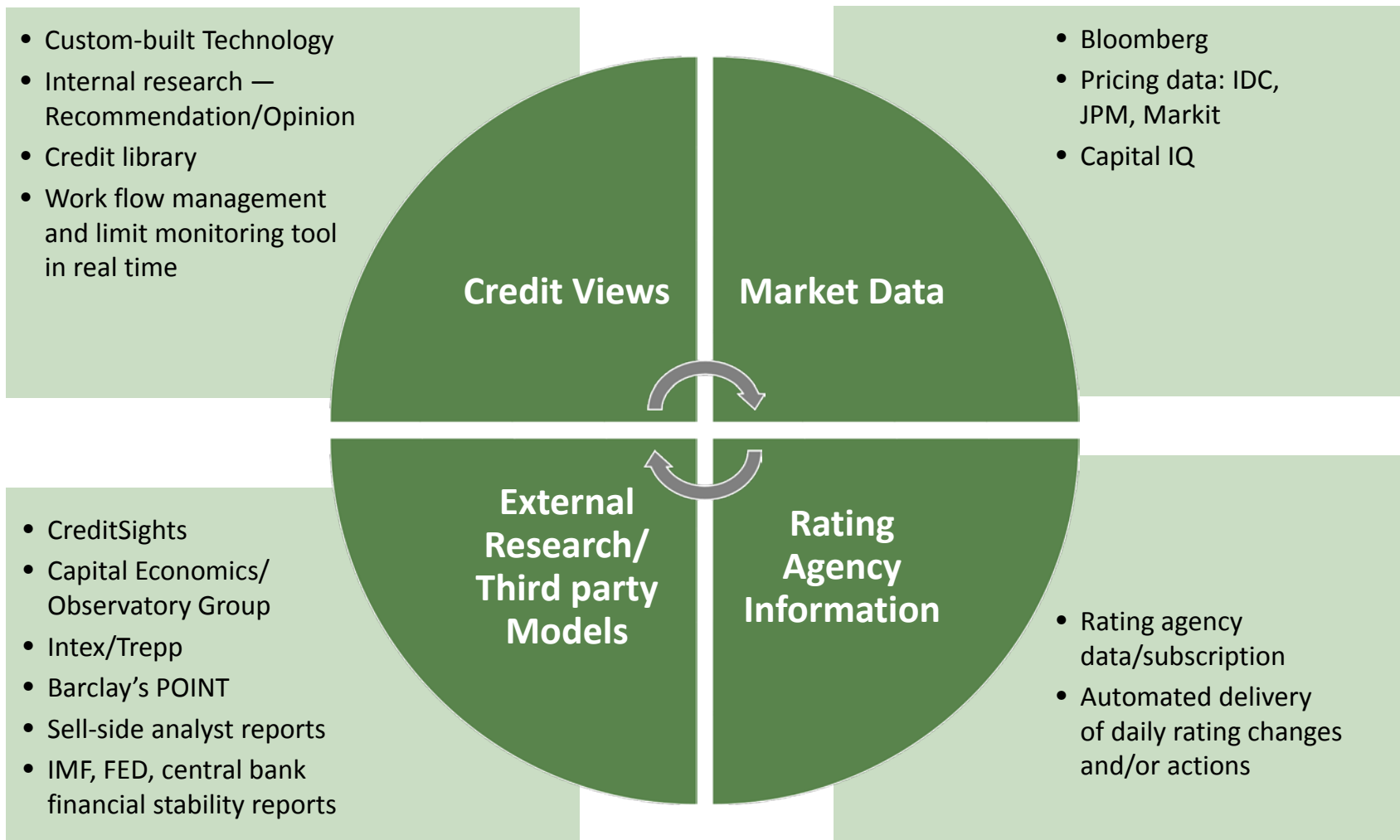
Process Driven Specific for Global Cash



Review & Evaluate	Transparency & Communication	Oversight & Control Mechanism	Approved list for Global Cash
<ul style="list-style-type: none"> • Formal credit documentation required for credit decisions • Extensive disclosure requirements • Actively identify new avenues to diversify, add new issuers/structures, and generate yield opportunities • Ability to adapt to changing issuance patterns 	<ul style="list-style-type: none"> • Signatory approval work flow • Proprietary credit research platform; intranet distribution of all credit opinions • Extensive technology resources • Consistent, structured interaction with PMs, across sites and asset classes 	<ul style="list-style-type: none"> • Ongoing fundamental assessment of credit worthiness • Formal surveillance process • Near-real time exposure monitoring and violation tracking • Ongoing rating updates 	<ul style="list-style-type: none"> • Approved list is “Black and White” — PMs can’t purchase if not on the list • Risk thresholds are set by asset limit and by maturity • “Blunt Tool” — increase in risk to our Approved list requires senior approval, whereas risk reduction is immediate

The information contained above is for illustrative purposes only.

Global Credit Research Process

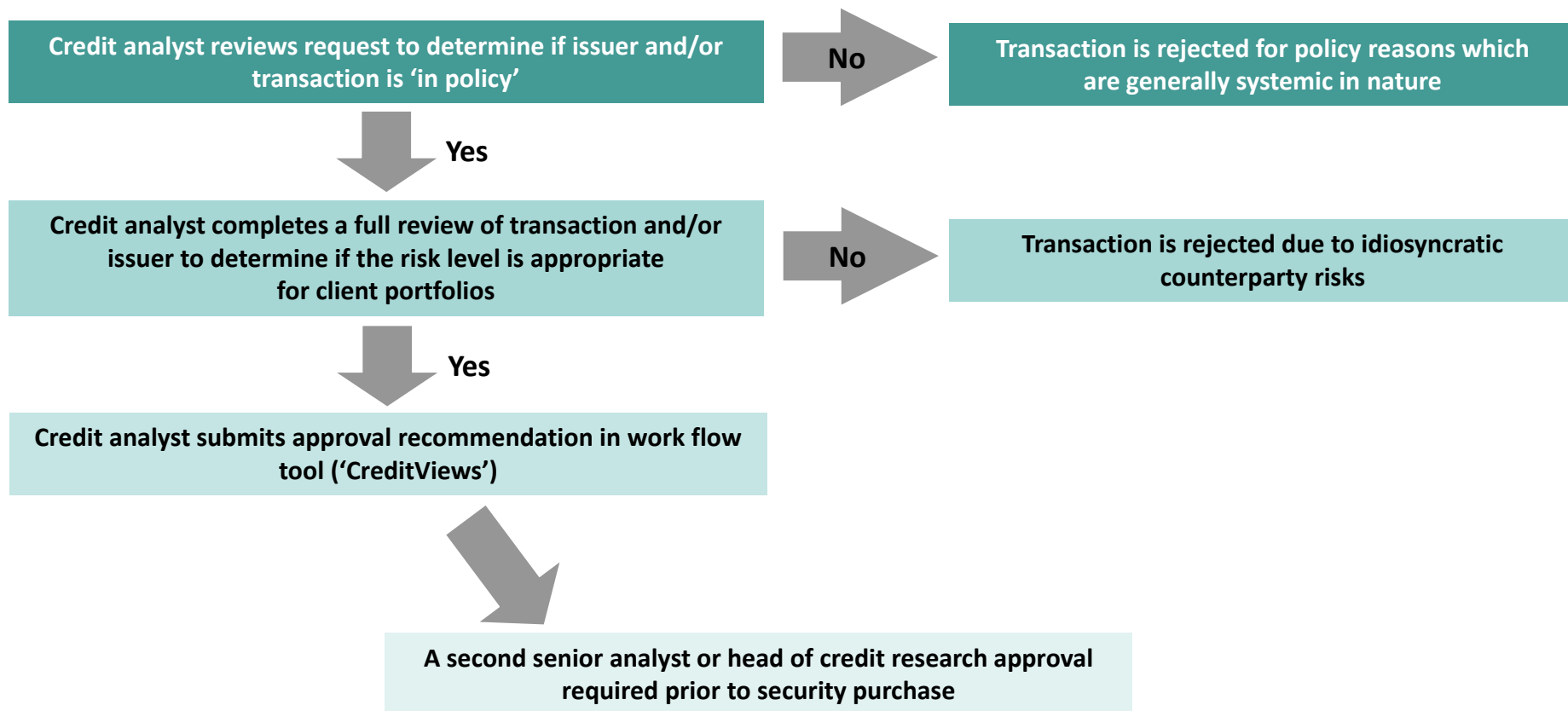


The information contained above is for illustrative purposes only.

Global Credit Research Process

Credit Approval Process for Global Cash Credit Exposures

New Issuer Request



The information contained above is for illustrative purposes only.

Primary Analytical Factors

Structured Finance

Servicer and originator review

- Key points: ratings, historical performance, origination and servicing strategy, underwriting standards
- Performed in collaboration with unsecured analyst team when appropriate

Legal structure assessment

- Primarily focused on bankruptcy remoteness of structure and 'true-sale' opinions

Deal structure analysis

- Review and model a transaction's pay-down structure, cash-flow triggers, and credit enhancement levels/types

Collateral evaluation

- Review the quality of underlying collateral including borrowers' credit characteristics, loan types and structures, geographic concentrations as well as historical performance data from the issuer
- Utilize both 3rd party and propriety models to assess impact of collateral performance on transaction structure

Unsecured

Fundamental credit review

- Quantitative factor: Liquidity and funding profile, capital structure, asset quality and earnings generation capacity
- Qualitative factors: Management capabilities, company strategy

Ratings review and action impact analysis

- Assess how each Agency rates an issuer and how these views could change
- Estimate the impact of a downgrade on an issuer's financial profile

Headline risk and suitability assessment

- Focus on systemic risk and the impact on the issuer

Repurchase Agreements

Counterparty Review

- Repurchase agreement counterparty reviews utilize the same process as an unsecured analysis

Collateral type assessment

- Evaluate the characteristics of repo collateral for diversification, adequacy of trading markets as well as pricing and data quality

Margin adequacy determination

- Evaluate a given collateral type's price volatility, market liquidity, and estimated liquidation timeframe

Tri-party custodian capabilities

- Assess available controls at tri-party custodians

Research factors may vary by type of credit.

Extensive On-going Credit Monitoring Requirements

Structured Finance	Unsecured	Repurchase Agreements
<ul style="list-style-type: none">• Formal monthly surveillance that includes quantitative analysis of underlying collateral and deal structure; review and cash flow modeling using Intex, Trepp• Review credit of sponsor, liquidity provider, originator, servicer• Participate in due diligence/ roadshow meetings, industry• Regular contact with rating agencies and sell-side analysts• Daily monitoring of ratings changes, price levels, and sector and issuer-specific news flow	<ul style="list-style-type: none">• Consider macroeconomic views• Formal review of publically-released financial information and other materials• Conduct management meetings and interviews, peer group analysis of both approved credits and other credits• Discuss issuers/sector with other market participants (analysts — rating agency, sell-side; traders; dealers)• Daily monitoring of ratings changes, price levels, and sector and issuer-specific news flow	<ul style="list-style-type: none">• Daily collateral review by operations team — supported by proprietary technology — that evaluates tri-party pricing and data quality, collateral eligibility and margin adequacy• Repurchase agreement counterparties are subject to the unsecured exposure review requirements

SSGA utilizes extensive levels of technology in its monitoring processes, including: Intex, Trepp, Capital IQ, Bloomberg, rating agency web-sites, 'sell-side' research and analytical tools (e.g., Barclay's POINT) as well as proprietary models

Research factors may vary by type of credit.

Global Credit Research Technology Platform

Credit Views

- Comprehensive risk management platform designed to aggregate credit analysis, holdings and recommendations into one dynamic system
- Captures all credit reports and increases transparency of credit process

CV - Credit View : Trader View - Microsoft Internet Explorer

Credit View : Trader View [Close]

Office: BOSTON Investment Type: ALL Family Status: Approved Families NotBalloed Families
 Desk: CASH Sub Investment Type: NA Frozen Families Specific Maturity Restriction: ALL MR
 List: Position: ALL Currency: USD Exchange Rate (USD/FC): 1.0000

Search Reset New Request

ALL # A B C D E F G H I J K L M N O P Q R S T U V W X Y Z AH IP QZ

Family	Investment Type	Family Approval Status	Asset Limit (M)	Used (M)	Variance (M)
Total			1,198,950.00	357,662.83	841,287.24
(+) ABCP	MR003		435.00	100.00	335.00
(+) UNSECURED	MR003		2,500.00	1,082.00	1,418.00
(+) ABCP	MR006		1,170.00	726.52	443.48
(+) ABS	MR084		4,880.00	2,072.51	2,807.49
(+) ABS	MR084		980.00	750.21	229.79
(+) ABS	MR084		335.00	0.00	335.00
(+) ABCP	MR001		2,415.00	2,409.53	5.47
(+) ABCP	MR003		1,530.00	0.00	1,530.00
(+) ABCP	MR006		1,065.00	160.70	904.30
(+) UNSECURED	MR018		6,000.00	3,511.22	2,488.78
(+) UNSECURED	MR003		500.00	0.00	500.00
(+) ABCP	MR001		375.00	154.68	220.33
(+) ABS	MR066		6,360.00	2,086.90	4,273.11
(+) ABS	MR060		130.00	0.00	130.00
(+) ABS	MR060		205.00	0.00	205.00
(+) ABS	MR036		1,400.00	136.40	1,263.60
(+) ABS	MR060		1,180.00	0.00	1,180.00
(+) ABS	MR044		2,750.00	619.04	2,130.96
(+) ABS	MR052		2,870.00	1,001.23	1,868.77
(+) ABS	MR060		2,700.00	278.97	2,421.03
(+) ABCP	MR003		640.00	475.00	165.00
(+) ABCP	MR006		2,330.00	100.00	2,230.00
(+) ABCP	MR009		4,355.00	0.00	4,355.00
(+) ABS	MR019		350.00	0.00	350.00
(+) UNSECURED	MR001		1,000.00	0.00	1,000.00

CSV | Excel | XML

Credit View : Family Notes and Analysis

As Of Date	Research / Note	Name	Family / Note Type	Comments	Author
02/09/2010 07:51:25	Family	...	REQUEST	...	Matthew Stensvay
02/09/2010 07:51:25	Family	...	Earnings Call	...	Attilo Quaberi
12/7/2009 11:19:21	Region	...	Sector Research	...	Christina Hudd
12/01/2009 08:27:47	Family	...	Credit Opinion	...	Attilo Quaberi
12/01/2009 09:55:17	Family	...	REQUEST	...	Matthew Stensvay
11/03/2009 06:43:31	Family	...	REQUEST	...	Matthew Stensvay
11/03/2009 06:43:31	Family	...	Earnings Call	...	Attilo Quaberi
07/21/2009 10:03:02	Family	...	...	...	...
07/24/2009 10:03:02	Family	...	...	...	...
07/11/2009 17:10:46	Industry	...	...	...	...
05/14/2009 09:50:26	Issuer	...	...	...	...
05/14/2009 09:50:15	Issuer	...	...	...	...
05/13/2009 10:20:32	Issuer	...	...	...	...
05/13/2009 10:20:32	Issuer	...	...	...	...
05/12/2009 08:32:33	Issuer	...	...	...	...
05/12/2009 08:32:33	Issuer	...	...	...	...
05/12/2009 08:31:51	Issuer	...	...	...	...
05/12/2009 08:31:40	Issuer	...	...	...	...

STATE STREET GLOBAL ADVISORS | SSGA

Global Credit Research

Earnings Call Summary

reported a net loss of \$194 million in 4Q09, although the loss to common shareholders including the TARP repayment charge was closer to \$5.2 billion. Included in results were \$1.6 billion of charges related to credit spread tightening on legacy assets, and a \$1.1 billion gain from within equity investment income. Overall, the company's revenue fell by 3.6% QOQ to \$2.4 billion. Although credit costs continue to be elevated (as into 40% of total revenue in both 4Q09 and 1P09), there were some positive trends that emerged in the period including the first QOQ decline in net charge-offs since 1Q06 and a slowdown in NPA growth and consumer delinquencies.

Profitability
Fully taxable-equivalent net interest income was up 1.2% QOQ but down 11% YoY to \$11.9 billion as the NIM rose by 1bp to 2.62% and offset a 2.6% decline in average loans and leases outstanding. Although loans were down, overall earning assets were up by 1% QOQ as the decline in loans was largely offset by higher debt security balances and repo assets. The cost of interest bearing liabilities declined during the quarter to 1.42% from 1.70%, while average earning asset yield fell to 3.96% from 4.19%. The sustainability of this NIM improvement is in question going forward.

Family Name ...
Reporting Period: ...
Report Type Earnings Call
Maturity Restriction Bank -> MR
 MR006 -> MR
Credit Trend Stabilizing
Analyst Attilo J. Quaberi
Ext. 617-664-6202

The information contained above is for illustrative purposes only.

Primary Activities

Regulatory Stress Testing	<ul style="list-style-type: none">• Manage SSGA Comprehensive Capital Analysis Review (CCAR) for the Federal Reserve• US Money Market (2A-7) funds stress testing for the SEC
Model Risk	<ul style="list-style-type: none">• Administer SSGA's model inventory and model risk governance framework• Recommend measures for improving efficiency of model development, testing, review, approval and implementation
Securities Lending	<ul style="list-style-type: none">• Perform stress analysis on SSGA's lending funds• Recommend securities lending rate limits by considering stress liquidity and market risk factors• Participate in decisions regarding SSGA's participation in the securities lending program
Margins	<ul style="list-style-type: none">• Perform stress analysis on current margin levels• Recommend mitigating actions
Country Risk	<ul style="list-style-type: none">• Aggregate and analyze firm exposure to countries identified as at risk• Recommend mitigating actions

STATE OF OREGON PERF

FC5L — STATE OF OREGON PERF Summary Characteristics

As of December 31, 2016

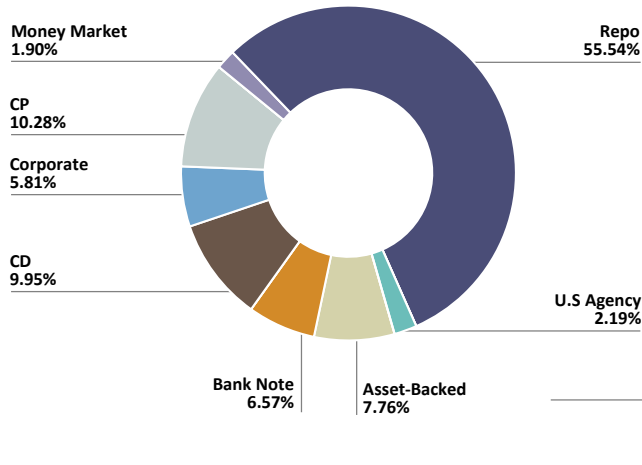
1-Day Yield (360 Basis)	0.76%
Shares Outstanding	1,507,481,813.40
Floating Rate %	37.25
% Foreign Issuers	11.68
WAM	16.93
WAM to Call	16.93
Call versus Mat Spread	—
% Callables	1.29%
Avg Life -Expected Maturity	70.63
Fund Price as of [12/30/2016]	99.9046
Number of Holdings	50

Credit Quality Breakdown

LONG-TERM RATINGS	% OF FUND
AAA	7.76
AA	8.92
A	5.51
BBB+	—
BBB	—
BBB-	—
BB+	—
BB	—
BB-	—
SHORT-TERM RATINGS	% OF FUND
A-1+/P-1	19.11
A-1/P-1	32.38
SPLIT	24.42
OTHER	1.90

Floating Index Breakdown

	% of Fund
FED FUNDS	—
1MO LIBOR	19.30
3 MOS LIBOR	17.95
PRIME	—
Reset Buckets	% of Fund
Next Business Day	2.39
2–7 Days	1.66
8–31 Days	21.46
1–2 Months	5.77
2–3 Months	5.97
Maturity Buckets	% of Fund
Next Business Day	57.45
1 WEEK LIQUIDITY	59.78
2–30 Days Liquidity	7.63
31–60 Days Liquidity	5.31
61–90 Days Liquidity	4.11
90 DAY LIQUIDITY	74.50
91–120 Days Liquidity	6.63
121–150 Days Liquidity	5.84
151–180 Days Liquidity	1.72
181–270 Days Liquidity	6.50
271–360 Days Liquidity	1.10
12–15 Month Liquidity	0.30
15–18 Month Liquidity	—
18–21 Month Liquidity	—
21–24 Month Liquidity	1.39
Greater than 2 Year Liquidity	2.01
Repo Collateral	% of Fund
Treasuries	47.38
Agencies	8.16
Agency MBS	—
Money Markets	—
Corporates	—
Asset-Backed	—
Equities	—



AU RMBS	—
Auto Retail	0.04
CLO	—
CMBS	—
Credit Card	7.72
Floor Plan	—
Home Equity	—
Other	—
Student Loan	—
UK RMBS	—

Source: Bloomberg Finance L.P., SSGA

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

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

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

STATE OF OREGON PERF LEGACY

FC5N — STATE OF OREGON PERF LEGACY Summary Characteristics

As of December 31, 2016

1-Day Yield (360 Basis)	1.37%
Shares Outstanding	28,711,284.65
Floating Rate %	100.00
% Foreign Issuers	29.48
WAM	23.37
WAM to Call	23.37
Call versus Mat Spread	—
% Callables	—
Avg Life -Expected Maturity	3,177.70
Fund Price as of [12/30/2016]	93.6198
Number of Holdings	5

Credit Quality Breakdown

LONG-TERM RATINGS	% OF FUND
AAA	2.44
AA	77.13
A	8.10
BBB+	—
BBB	—
BBB-	—
BB+	—
BB	—
BB-	—
SHORT-TERM RATINGS	% OF FUND
A-1+/P-1	—
A-1/P-1	—
SPLIT	—
OTHER	12.32

Floating Index Breakdown

	% of Fund
FED FUNDS	—
1MO LIBOR	12.32
3 MOS LIBOR	87.68
PRIME	—
Reset Buckets	% of Fund
Next Business Day	—
2–7 Days	—
8–31 Days	100.00
1–2 Months	—
2–3 Months	—
Maturity Buckets	% of Fund
Next Business Day	—
1 WEEK LIQUIDITY	—
2–30 Days Liquidity	—
31–60 Days Liquidity	—
61–90 Days Liquidity	—
90 DAY LIQUIDITY	—
91–120 Days Liquidity	—
121–150 Days Liquidity	—
151–180 Days Liquidity	—
181–270 Days Liquidity	8.10
271–360 Days Liquidity	—
12–15 Month Liquidity	—
15–18 Month Liquidity	—
18–21 Month Liquidity	—
21–24 Month Liquidity	—
Greater than 2 Year Liquidity	91.90
Repo Collateral	% of Fund
Treasuries	—
Agencies	—
Agency MBS	—
Money Markets	—
Corporates	—
Asset-Backed	—
Equities	—



Asset-Backed
100.00%

AU RMBS	2.44
Auto Retail	—
CLO	—
CMBS	—
Credit Card	—
Floor Plan	—
Home Equity	12.32
Other	—
Student Loan	58.20
UK RMBS	27.03

Source: Bloomberg Finance L.P., SSGA

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OREGON SHORT TERM FUND

FC91 — OREGON SHORT TERM FUND Summary Characteristics

As of December 31, 2016

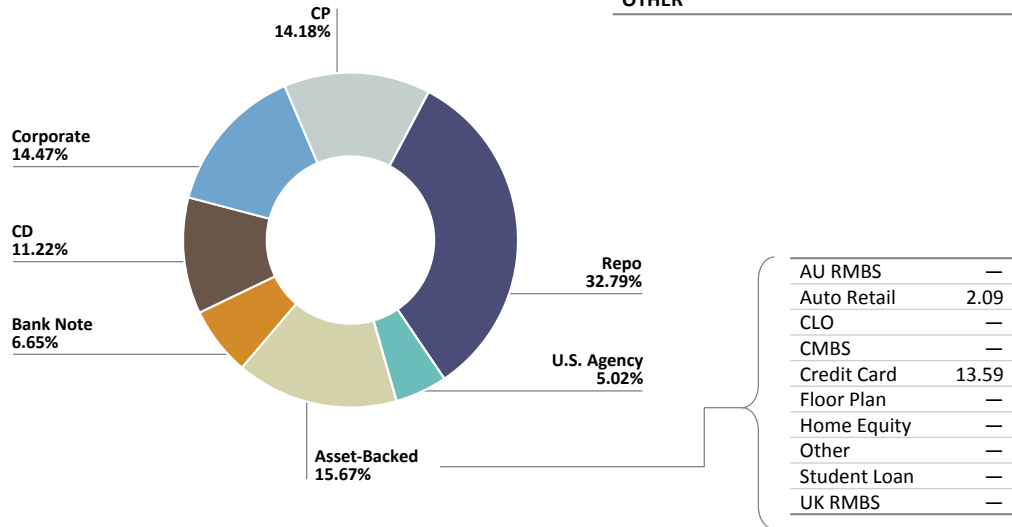
1-Day Yield (360 Basis)	0.92%
Shares Outstanding	344,006,587.28
Floating Rate %	64.26
% Foreign Issuers	19.79
WAM	21.42
WAM to Call	21.42
Call versus Mat Spread	—
% Callables	3.78%
Avg Life -Expected Maturity	93.97
Fund Price as of [12/30/2016]	100.0556
Number of Holdings	43

Credit Quality Breakdown

LONG-TERM RATINGS	% OF FUND
AAA	12.98
AA	17.57
A	7.38
BBB+	—
BBB	—
BBB-	—
BB+	—
BB	—
BB-	—
SHORT-TERM RATINGS	% OF FUND
A-1+/P-1	19.20
A-1/P-1	24.52
SPLIT	15.65
OTHER	2.69

Floating Index Breakdown

	% of Fund
FED FUNDS	—
1MO LIBOR	33.69
3 MOS LIBOR	3057
PRIME	—
Reset Buckets	% of Fund
Next Business Day	2.95
2–7 Days	2.07
8–31 Days	39.75
1–2 Months	13.29
2–3 Months	6.20
Maturity Buckets	% of Fund
Next Business Day	33.85
1 WEEK LIQUIDITY	40.83
2–30 Days Liquidity	13.37
31–60 Days Liquidity	8.78
61–90 Days Liquidity	4.90
90 DAY LIQUIDITY	60.89
91–120 Days Liquidity	7.54
121–150 Days Liquidity	8.14
151–180 Days Liquidity	4.94
181–270 Days Liquidity	10.50
271–360 Days Liquidity	3.49
12–15 Month Liquidity	3.34
15–18 Month Liquidity	—
18–21 Month Liquidity	—
21–24 Month Liquidity	1.16
Greater than 2 Year Liquidity	—
Repo Collateral	% of Fund
Treasuries	25.99
Agencies	6.79
Agency MBS	—
Money Markets	—
Corporates	—
Asset-Backed	—
Equities	—



Source: Bloomberg Finance L.P., SSGA

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

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

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Appendix A: Important Disclosures

Important Disclosures

The views expressed in this material are the views of Robert Jackson through the period ended December 31, 2016 and are subject to change based on market and other conditions. This document contains certain statements that may be deemed forward-looking statements. Please note that any such statements are not guarantees of any future performance and actual results or developments may differ materially from those projected.

Investing involves risk including the risk of loss of principal.

Equity securities may fluctuate in value in response to the activities of individual companies and general market and economic conditions.

These investments may have difficulty in liquidating an investment position without taking a significant discount from current market value, which can be a significant problem with certain lightly traded securities.

Investments in asset backed and mortgage backed securities are subject to prepayment risk which can limit the potential for gain during a declining interest rate environment and increases the potential for loss in a rising interest rate environment.

Treasury bills are insured and guaranteed by the US government. US Treasury Bills maintain a stable value if held to maturity, but returns are generally only slightly above the inflation rate.

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Margin trading can add to the speculative risk involved given the potential for margin calls if the price moves against the contract holder.

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Tracking Code: GCB-1220

Expiration Date: April 30, 2017

Appendix B: Biography

Biography



Robert T. Jackson

Robert “Bo” is a Vice President at State Street Global Advisors and a Senior Portfolio Manager in the US Cash Management Group. Prior to joining SSGA in March 2005, Bo was Senior Trader/Portfolio Manager with Investors Bank and Trust Company in Boston for over 8 years. While at IBT, he was responsible for that firm’s short term cash investments, with particular focus on Securities Lending cash reinvestment. Prior to IBT, Bo worked in various secondary marketing roles in the mortgage industry. Bo has worked in the investment management field since 1996.

Bo holds a Bachelor of Science degree in Finance from the University of Massachusetts and a Master of Science degree in Finance from Bentley College.

TAB 7 – Overlay Review

OPERF

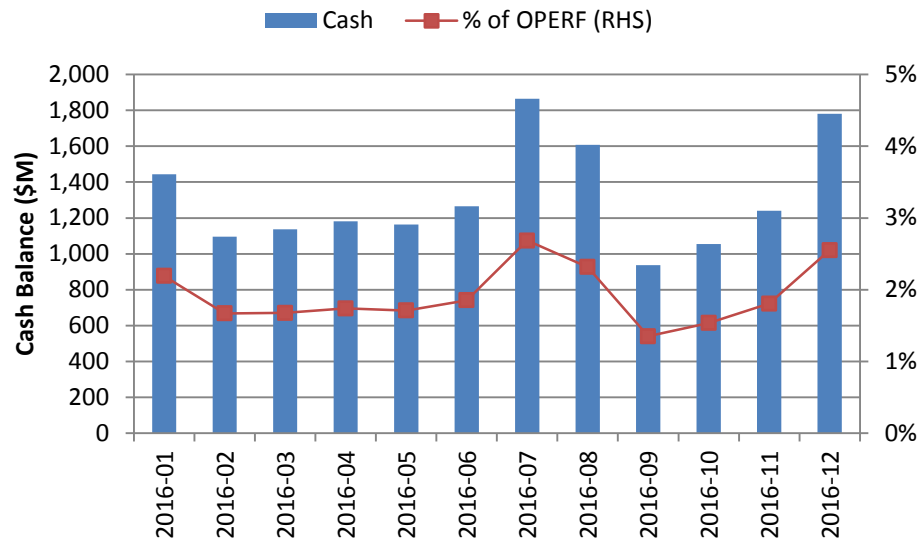
OPERF Policy Implementation Overlay Manager Annual Update

Purpose

To provide the OIC an update on the OPERF overlay program, currently managed by Russell Investments.

Background

Although OPERF does not have a strategic allocation to cash, it maintains a cash balance that is primarily invested with the Oregon Short Term Fund (OSTF). This cash balance is used to make regularly-scheduled PERS benefit payments as well handle episodic capital calls and distributions associated with OPERF's private market investments. The plot below shows OPERF's monthly cash balance over time, specifically that invested in OSTF and subject to the overlay program.



Since it does not have a strategic allocation target, the OPERF cash balance may be the source of “cash drag” in that it is not invested in investments with greater potential return. To minimize cash drag, the OIC retained Russell Investments to implement an overlay program that equitizes OPERF's cash balances. Specifically, Russell monitors and, if necessary, equitizes both excess cash held by public equity and REIT managers and any other idle OPERF cash. In its equitizing process, Russell uses highly-liquid futures contracts with margin requirements much smaller than the contracts' “face” or “notional” values. As part of its process, Russell also a) monitors OPERF's asset allocation relative to its OIC-established strategic targets (see attached OIC Policy INV 215: OPERF Asset Allocation and Rebalancing Policy) and b) trades equity and fixed income futures contracts as necessary to align the Fund's overall asset allocation with these OIC-established targets. For perspective on the overlay program, OIC members receive a monthly update on the program's overlay exposures in the asset allocation section of the regular OIC meeting materials.

As of December 31, 2016, the OPERF overlay program was long \$1.20 billion in fixed income contracts and long \$608 million in global equity contracts for a total notional exposure of \$1.80 billion.

Staff Recommendation

None, information only.



Origination: 09/2014
Last Approved: 09/2015
Last Revised: 09/2015
Next Review: 09/2016
Owner: *John Skjervem: Chief Investment Officer*
Policy Area: *Investments*
References: *OST Policy 4.01.18*

INV 215: OPERF Asset Allocation and Rebalancing Policy

OREGON INVESTMENT COUNCIL POLICY

INTRODUCTION AND SUMMARY

Summary Policy Statement

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

Purpose and Goals

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

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

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

Applicability

Classified represented, management service, unclassified executive service

Authority

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

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

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

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

POLICY PROVISIONS

Definitions

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

Policy Statements

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

OPERF	Policy	Target
Public Equity	32.5-42.5%	37.5%
Private Equity	13.5-21.5%	17.5%
Total Equity	50.0-60.0%	55.0%
Opportunity Portfolio	0-3%	0.0%
Fixed Income	15-25%	20.0%
Real Estate	9.5-15.5%	12.5%
Alternative Investments	0-12.5%	12.5%
Cash	0-3%	0.0%
TOTAL OPERF		100%

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

IMPLEMENTATION

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

ASSET ALLOCATION AND EXPECTED RETURNS

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

Exceptions

None.

Failure to Comply

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

PROCEDURES and FORMS

None.

ADMINISTRATION

Feedback

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

Attachments:

No Attachments

Approval Signatures

Step Description	Approver	Date
Oregon Investment Council	John Skjervem: Chief Investment Officer	09/2015
	Kim Olson: Policy Analyst	09/2015
	Mike Mueller	09/2015

COPY

State of Oregon

Russell Investments Overlay Update

Greg Nordquist, CFA – Director, Overlay Strategies

Ben Linford, CFA – Portfolio Manager, Overlay Strategies

MARCH 15, 2017

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Date of first use: March 2017
RIIS RC: 3112

Overlay overview

Why use an overlay?

- › Reduce Cash Drag
- › Reduce Risk
- › Reduce Transaction Costs

Reduce cash drag



Reduce cash drag

No strategic allocation to cash

OPERF Asset Allocation - 12/30/2016



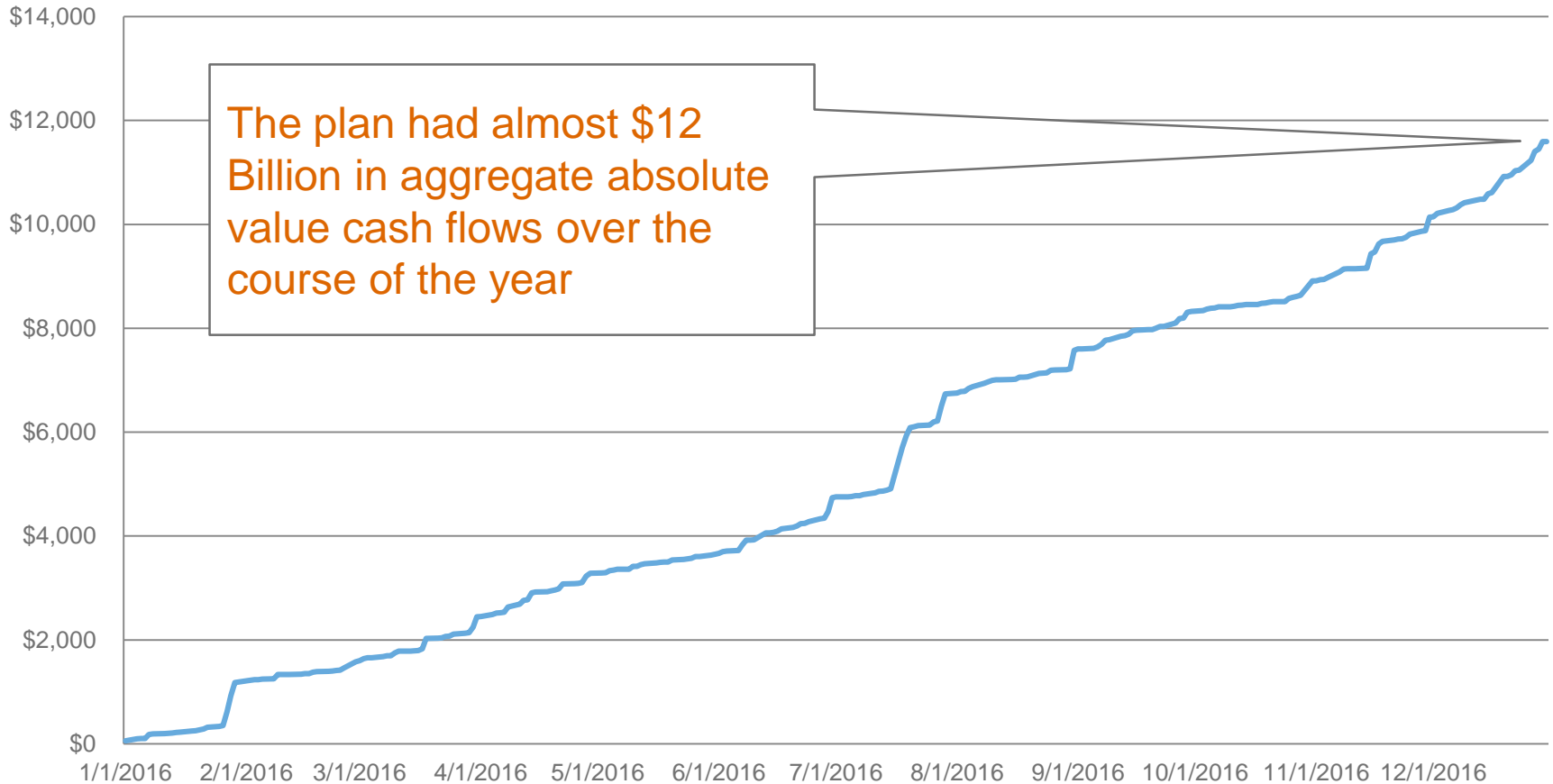
The plan has no strategic allocation to cash

	Global Equity	Fixed	Private Equity	Alternatives	Real Estate	Cash	Opportunity
Physical Exposure	38.0%	20.0%	19.4%	5.8%	12.0%	2.6%	2.1%
Net Position (with overlay)	38.9%	21.7%	19.4%	5.8%	12.0%	0.0%	2.1%
Interim Policy Target	40.0%	22.5%	20.0%	5.0%	12.5%	0.0%	0.0%
Policy Target	37.5%	20.0%	17.5%	12.5%	12.5%	0.0%	0.0%

Reduce cash drag

Plan cash flows

Cash Account (599G)
Cumulative change in cash (\$ mm)

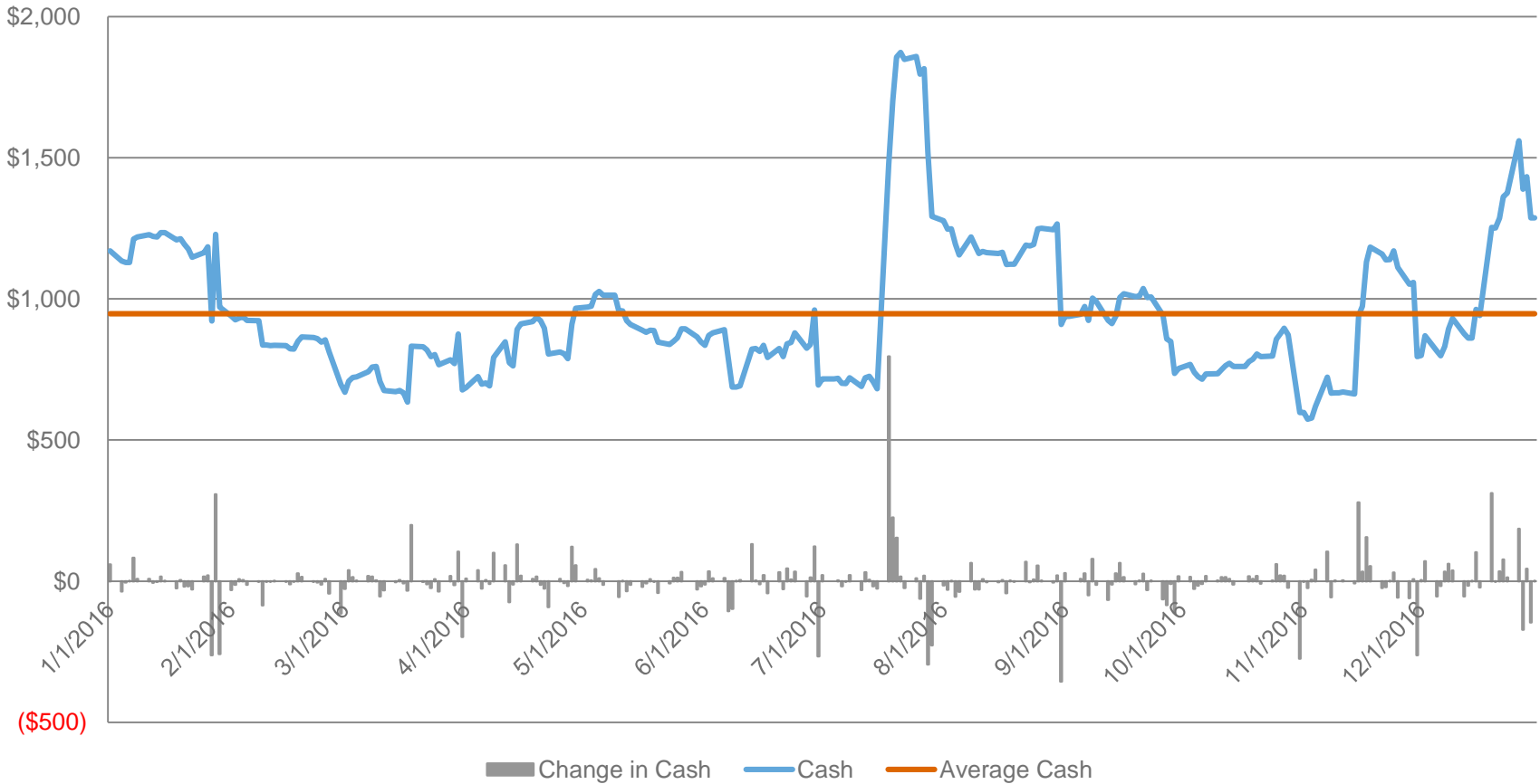


Past performance is not a guarantee of future results.

Reduce cash drag

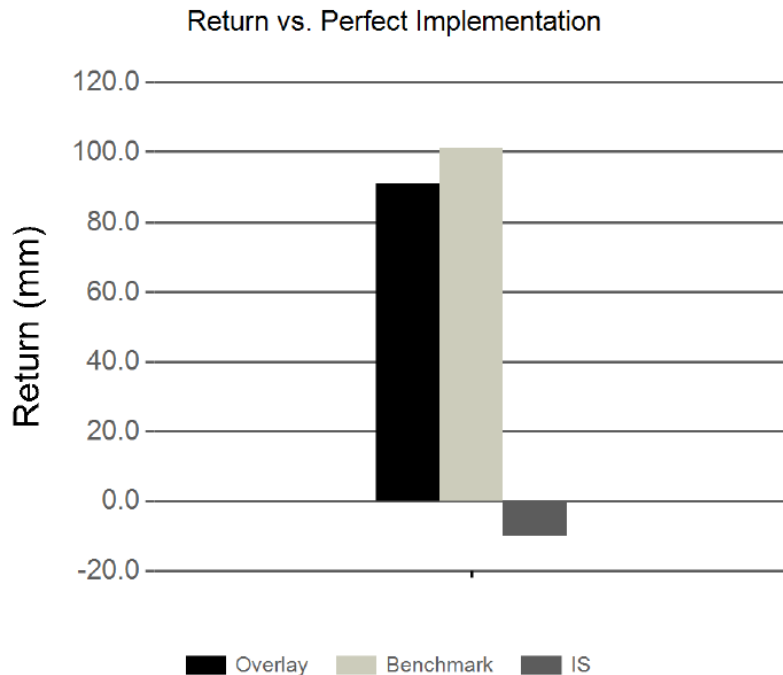
Plan cash levels

Cash Account (599G) Total Cash and Daily Change in Cash (\$ mm)




Past performance is not a guarantee of future results.

Reduce cash drag



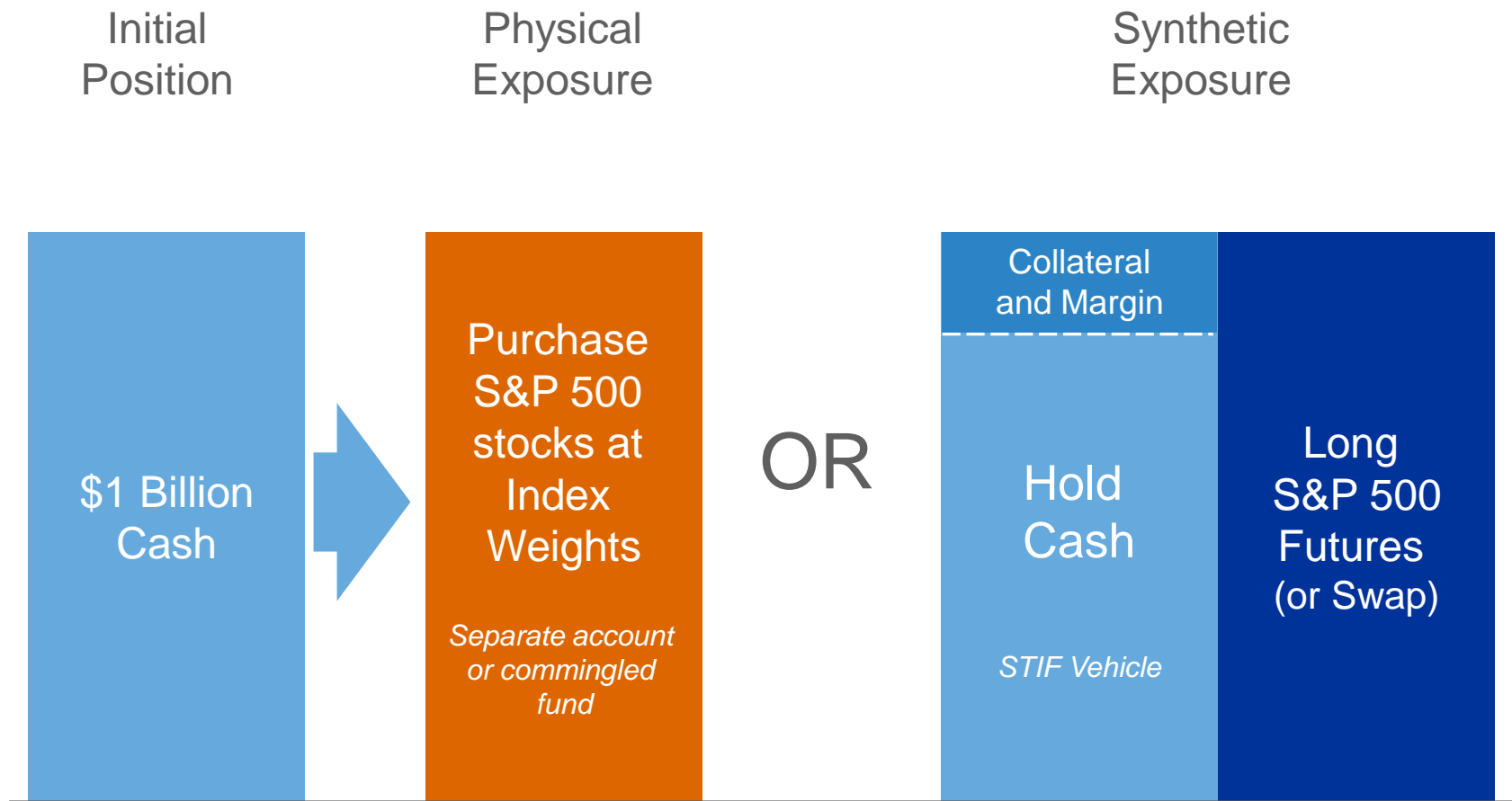
- › Without the overlay the plan would have missed out on about \$90 million in returns over the course of the year
- › In other words, by simply sitting in cash without an overlay the plan would have been \$90 million less funded

Futures Overlay Explained
Futures = Liquid Exposure
(NOT Leverage in this case)



Overlay futures explained

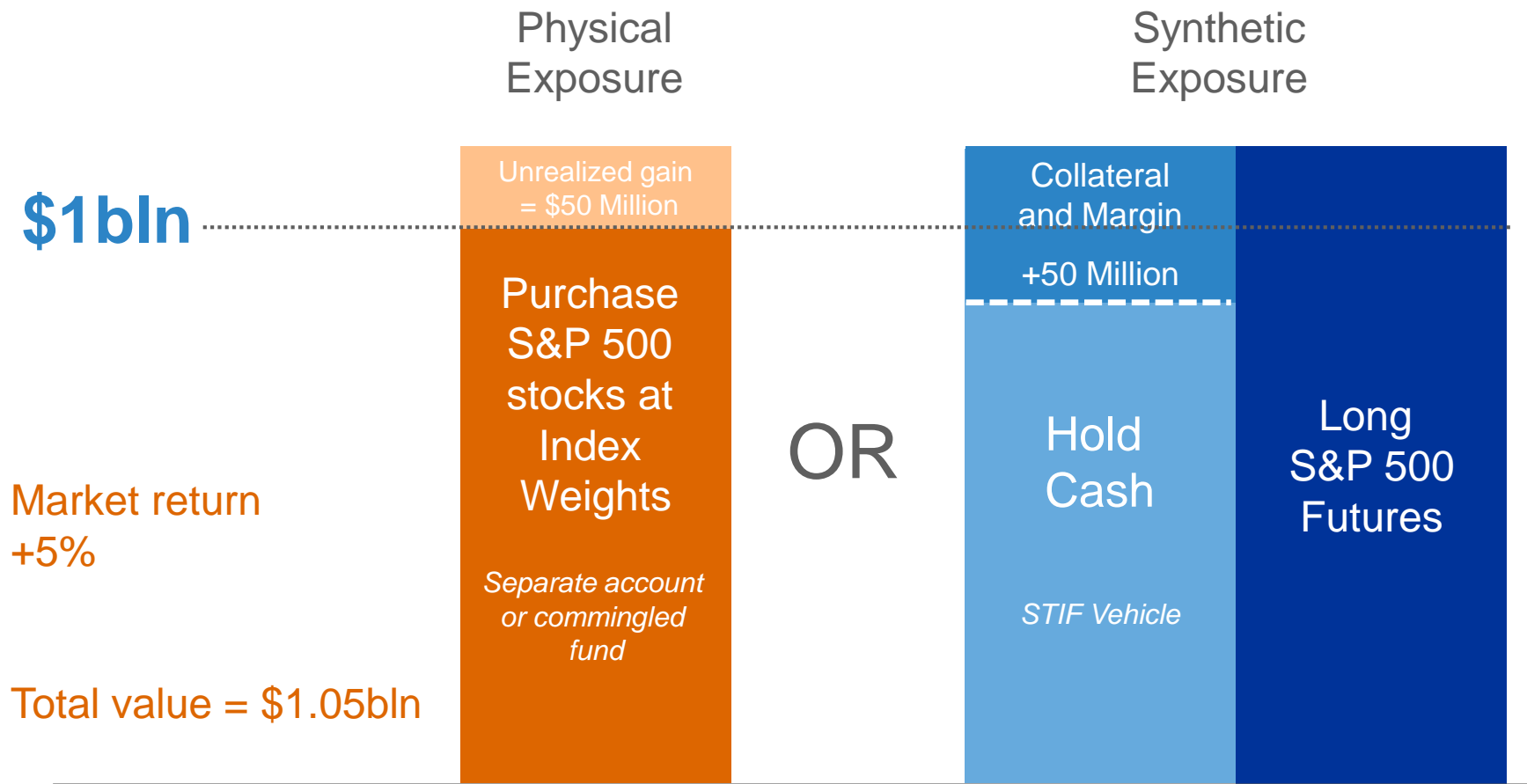
Physicals vs Futures example - Day 1



For illustrative purposes only.
Indexes are unmanaged and cannot be invested in directly.

Overlay futures explained

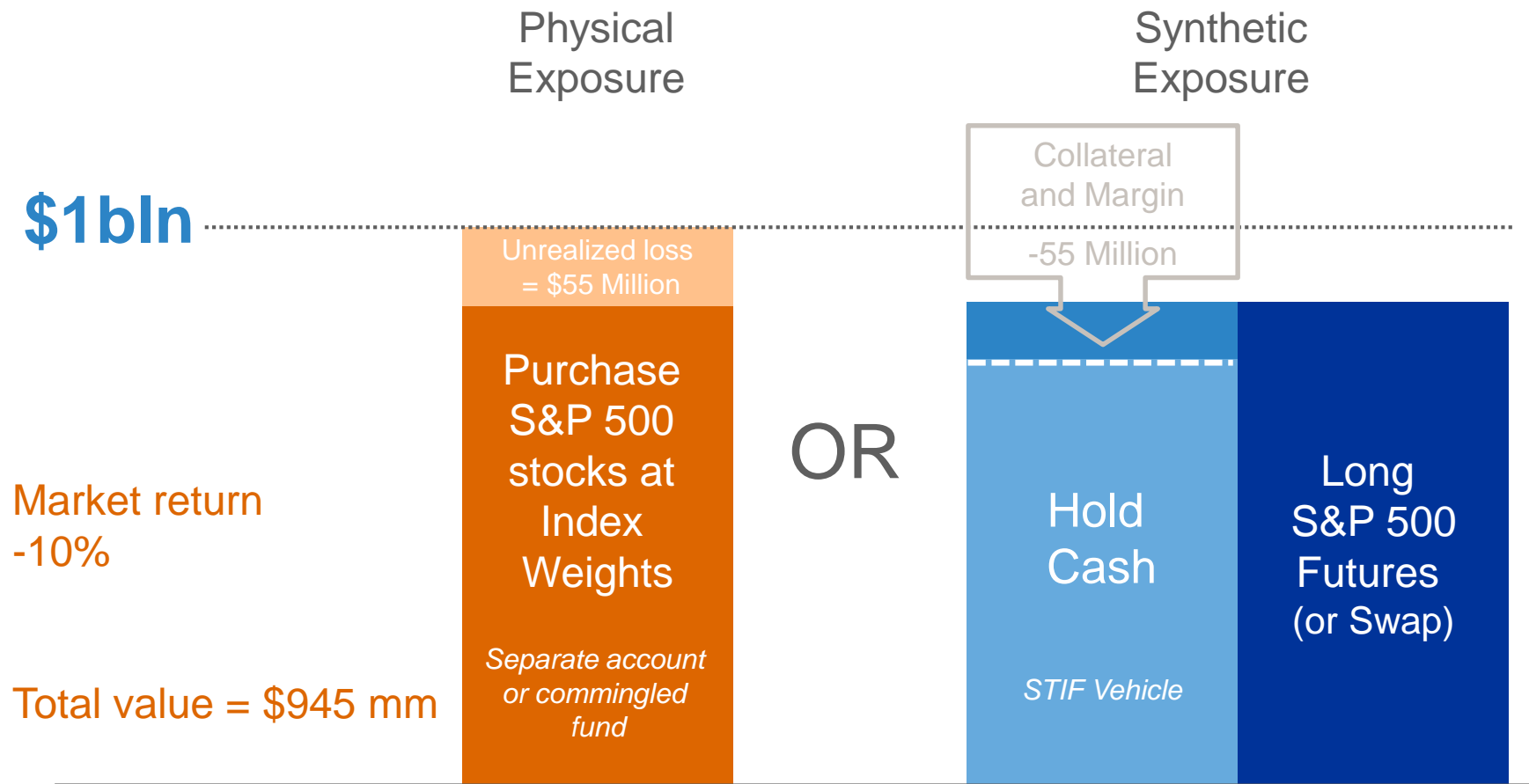
Physicals vs Futures example - Day 2



For illustrative purposes only.
Indexes are unmanaged and cannot be invested in directly.

Overlay futures explained

Physicals vs Futures example - Day 3



For illustrative purposes only.
Indexes are unmanaged and cannot be invested in directly.

Reduce risk

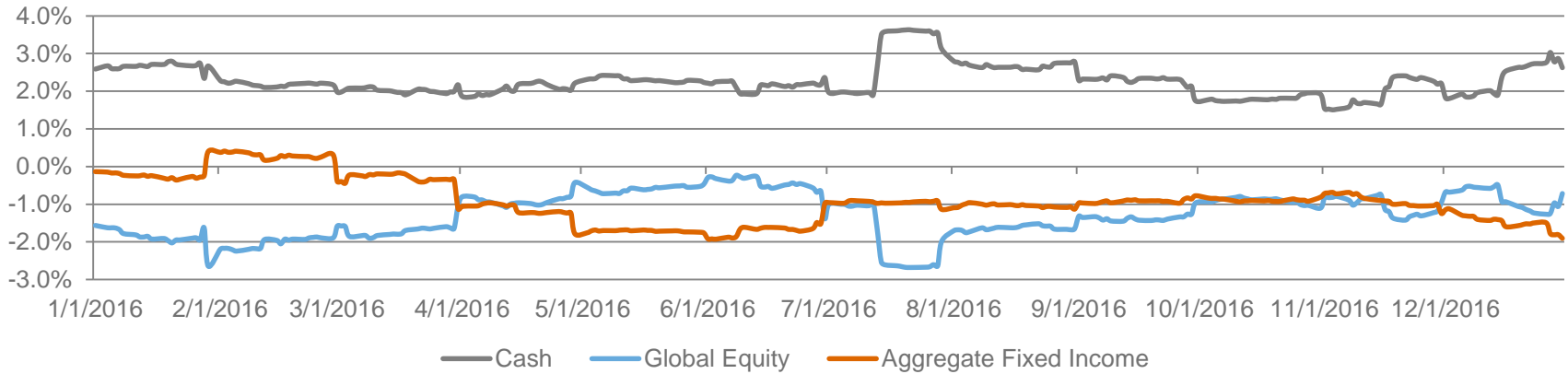


Reduce risk

Deviations from policy exposures

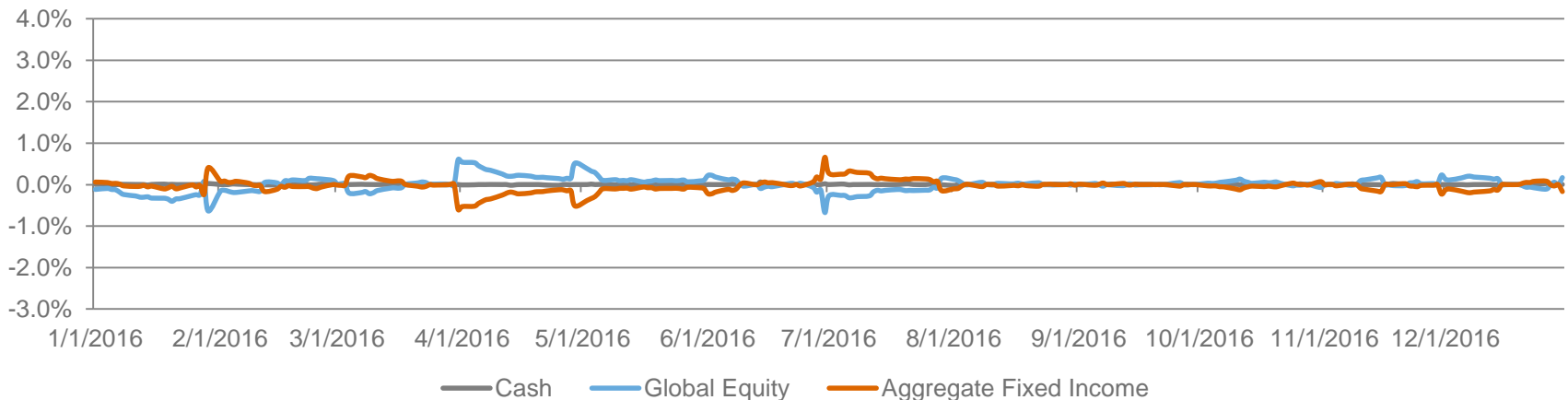
Without Overlay

Daily Physical % vs. Target



With Overlay

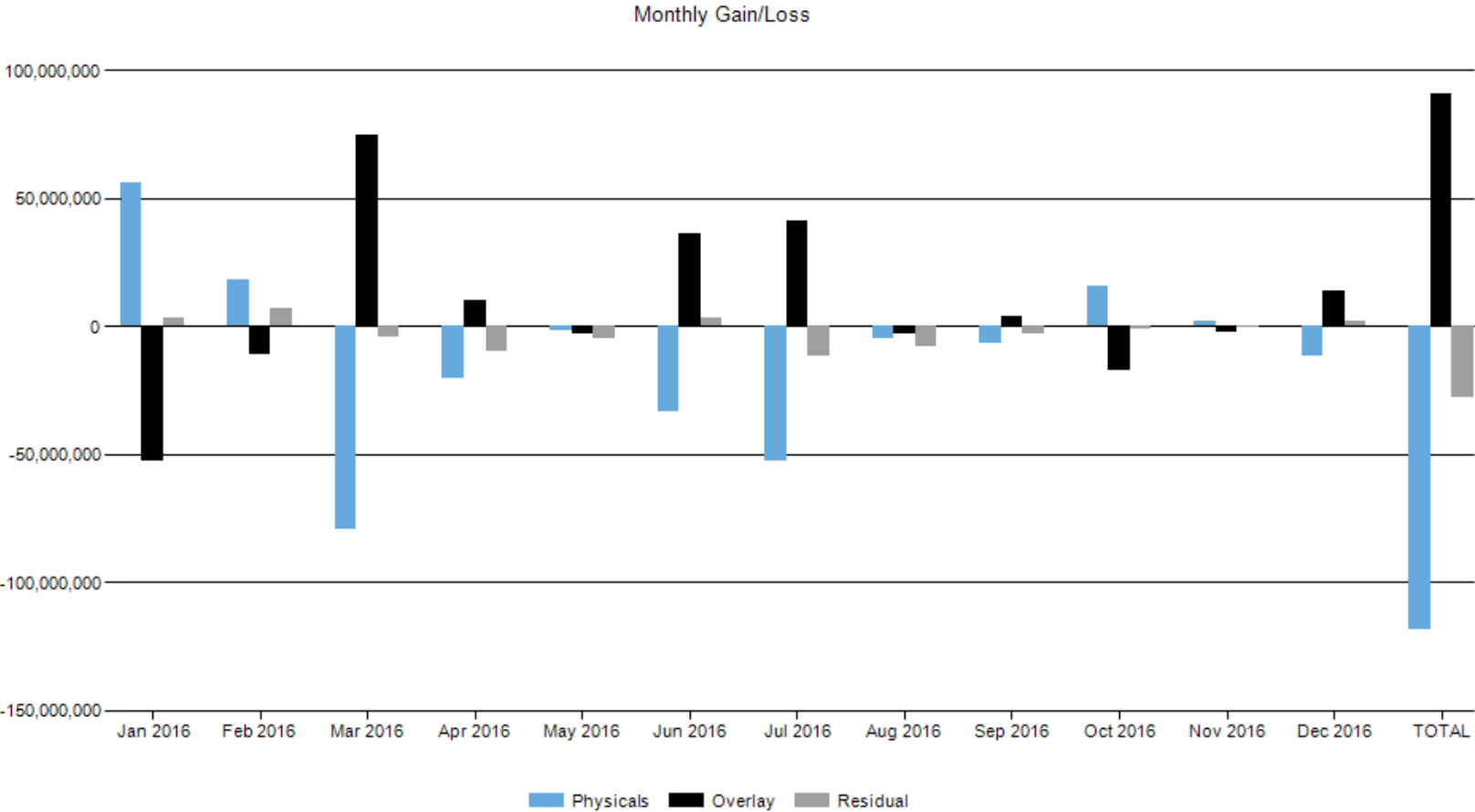
Daily Net Exposure % vs. Target



Past performance is not a guarantee of future results.

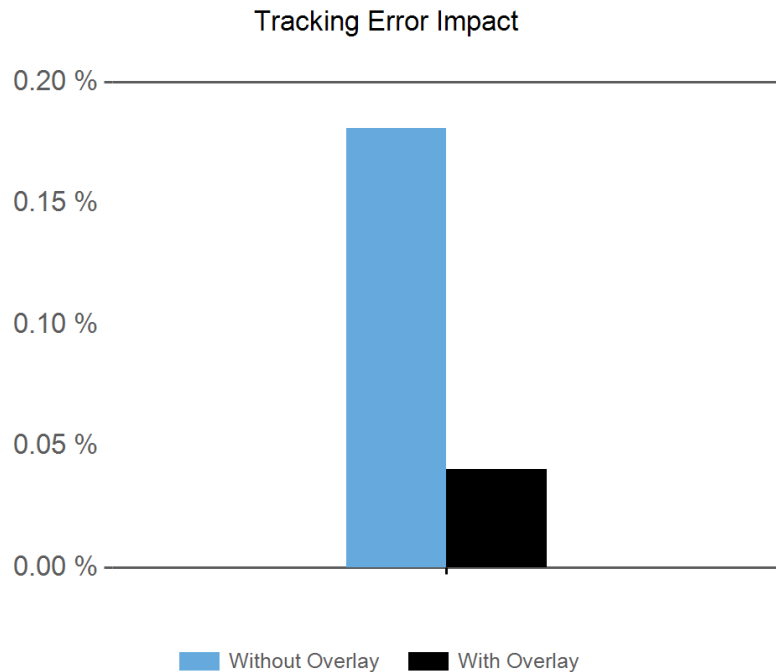
Reduce risk

Gain / Loss due to deviations



Past performance is not a guarantee of future results.

Reduce risk



- › The Overlay reduced the tracking error of the plan vs. its policy benchmark by about 75%
- › Given OPERF's \$70 billion market value, this tracking error could mean unexpected performance of \pm \$90 million

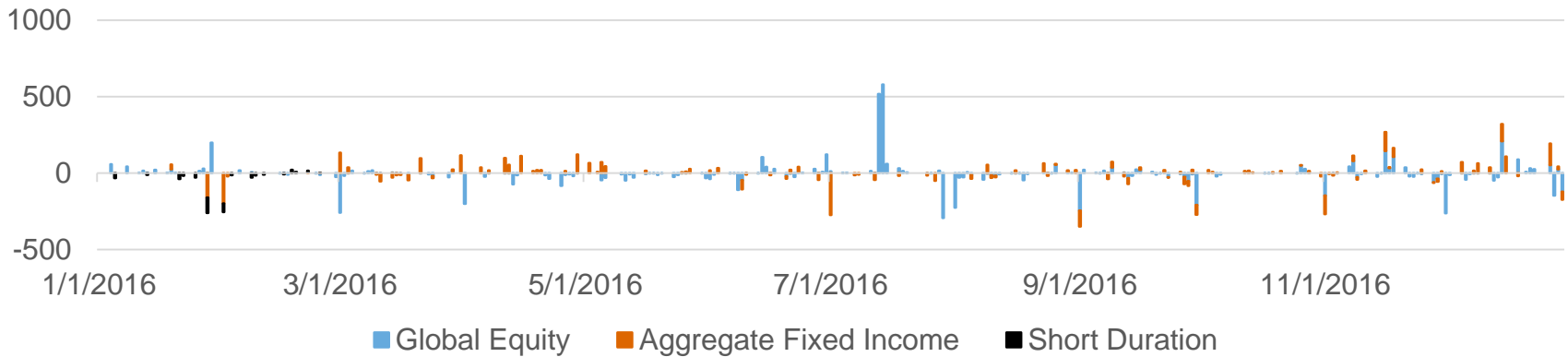
Reduce transaction costs



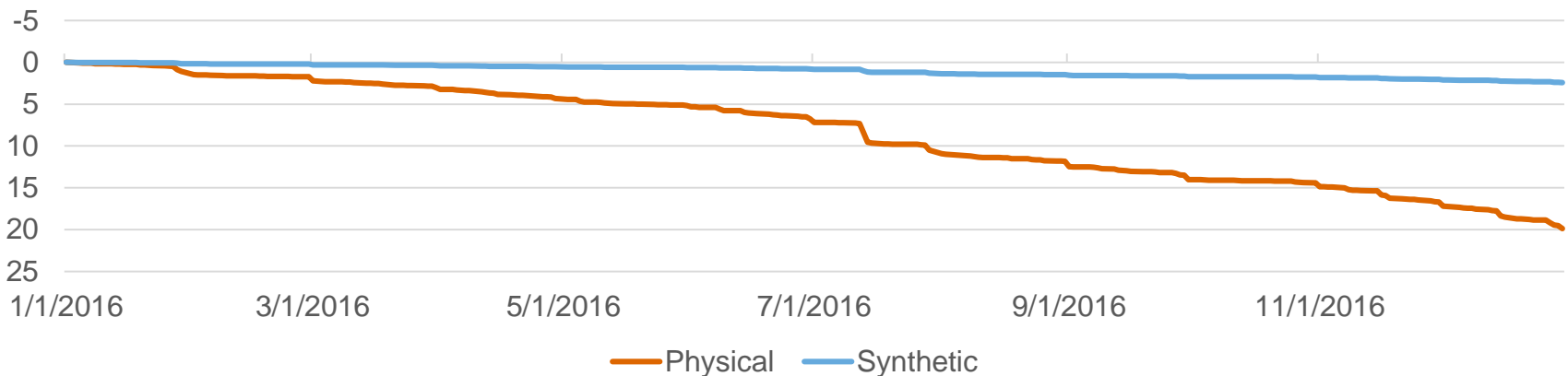
Reduce transaction costs

Daily traded flows & estimated transaction costs

Daily Traded Flows (\$mm)

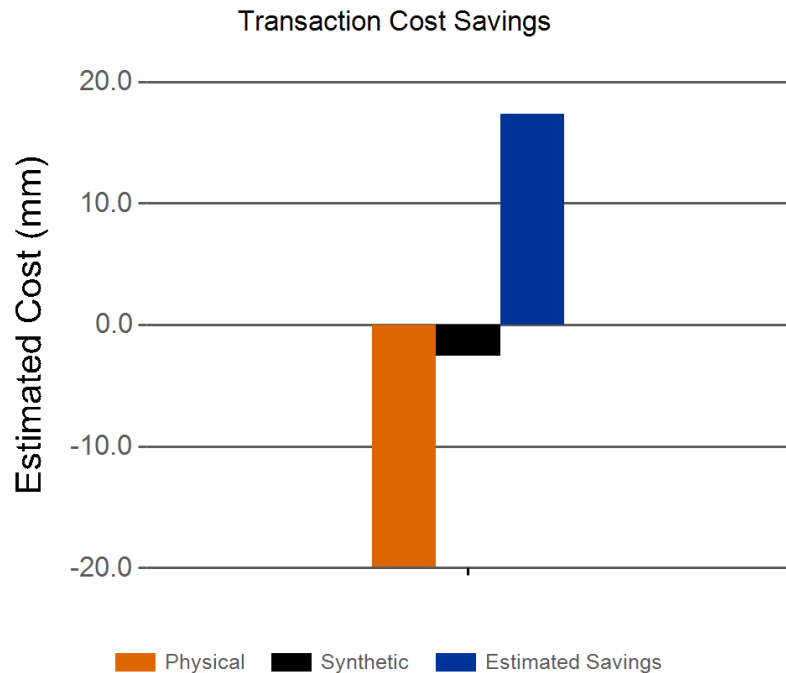


Estimated Transaction Costs (\$mm)



Past performance is not a guarantee of future results.

Reduce transaction costs

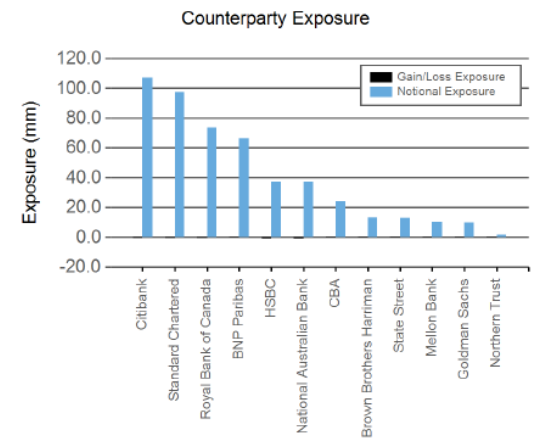
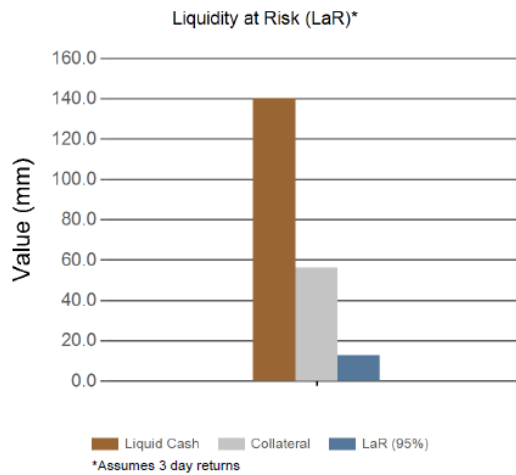
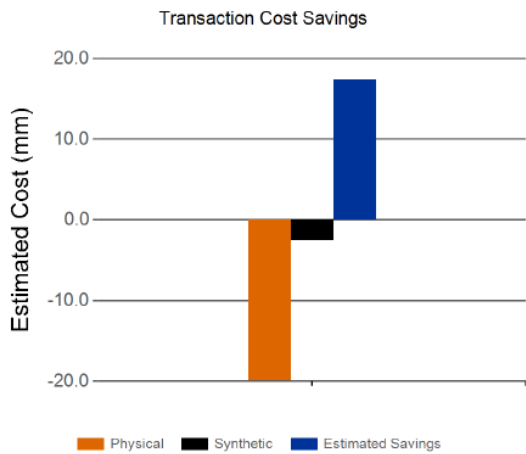
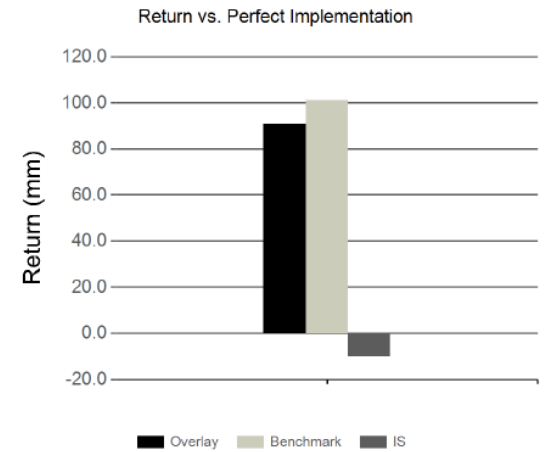
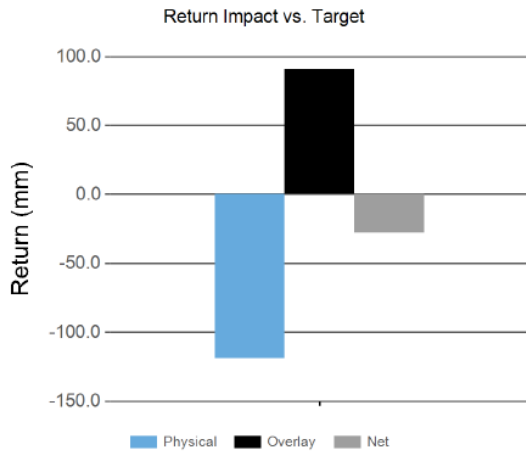


- › Compared to rebalancing physicals, we estimate that rebalancing with derivatives in the overlay saved about \$17 million in transaction costs

Overlay overview



Overlay highlights - 2016

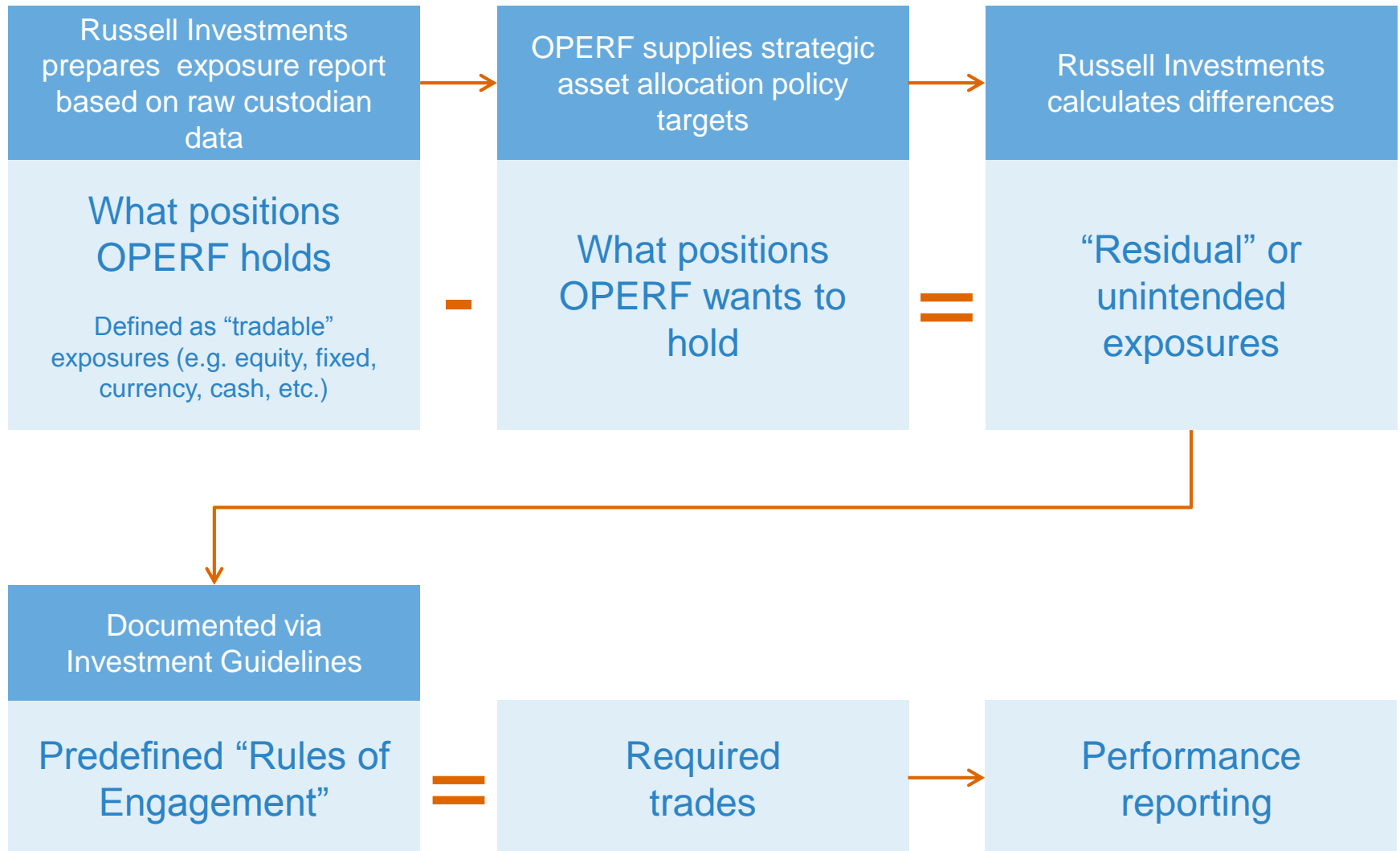


Past performance is not a guarantee of future results.

Appendix



Investment process



For illustrative purposes only.

Performance summary

Time Period	Gain/Loss	Portfolio Return	Perfect Implementation
December, 2016	13,782,912.86	0.02 %	0.02 %
4th Quarter	-5,548,275.46	-0.01 %	-0.01 %
One Year	91,262,139.39	0.14 %	0.16 %
Two Years	157,967,467.39	0.12 %	0.13 %
Three Years	177,738,629.99	0.09 %	0.10 %
Annualized Since Inception*	2,030,067.27	0.02 %	0.01 %
Cumulative Since Inception*	22,786,809.90	0.17 %	0.12 %

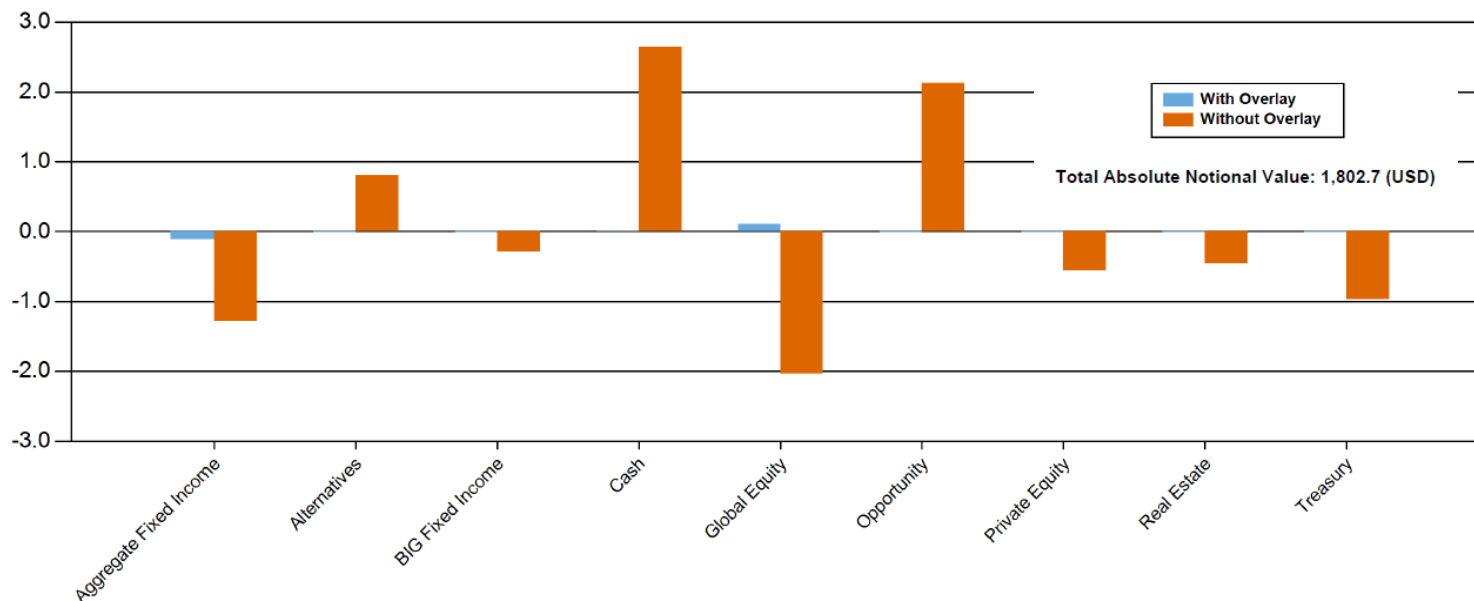


*Date of inception: October 11, 2005
 Past performance is not a guarantee of future results.

Asset summary – 12/30/2016

Asset Class	Physical Exposure		Synthetic Exposure		Net Position		Overlay Target		Policy Target	
	Value	%	Value	%	Value	%	Value	%	Value	%
Total Market Value	68,531.4	100.0 %	0.0	0.0 %	68,531.4	100.0 %	68,531.4	100.0 %	68,531.4	100.0 %
Cash	1,812.6	2.6 %	-1,802.7	-2.6 %	9.9	0.0 %	9.1	0.0 %	0.0	0.00 %
Cash	1,812.6	2.6 %	-1,802.7	-2.6 %	9.9	0.0 %	9.1	0.0 %	0.0	0.00 %
Equity	39,340.4	57.4 %	607.6	0.9 %	39,948.0	58.3 %	39,873.4	58.2 %	41,118.7	60.00 %
Global Equity	26,018.8	38.0 %	607.6	0.9 %	26,626.4	38.9 %	26,551.9	38.7 %	27,412.5	40.00 %
Private Equity	13,321.5	19.4 %	0.0	0.0 %	13,321.5	19.4 %	13,321.5	19.4 %	13,706.3	20.00 %
Fixed	13,682.1	20.0 %	1,195.1	1.7 %	14,877.2	21.7 %	14,952.6	21.8 %	15,419.6	22.50 %
Aggregate Fixed Income	6,252.6	9.1 %	1,195.1	1.7 %	7,447.7	10.9 %	7,523.1	11.0 %	7,127.3	10.40 %
BIG Fixed Income	2,404.1	3.5 %	0.0	0.0 %	2,404.1	3.5 %	2,404.1	3.5 %	2,604.2	3.80 %
Treasury	5,025.4	7.3 %	0.0	0.0 %	5,025.4	7.3 %	5,025.4	7.3 %	5,688.1	8.30 %
Other	13,696.3	20.0 %	0.0	0.0 %	13,696.3	20.0 %	13,696.3	20.0 %	11,993.1	17.50 %
Alternatives	3,980.3	5.8 %	0.0	0.0 %	3,980.3	5.8 %	3,980.3	5.8 %	3,426.6	5.00 %
Opportunity	1,460.0	2.1 %	0.0	0.0 %	1,460.0	2.1 %	1,460.0	2.1 %	0.1	0.00 %
Real Estate	8,256.0	12.0 %	0.0	0.0 %	8,256.0	12.0 %	8,256.0	12.0 %	8,566.4	12.50 %

Percent Deviation from Overlay Target



Past performance is not a guarantee of future results.



TAB 8 – Currency Project Update

OPERF

OPERF Currency Project Update

Purpose

Provide the Oregon Investment Council (OIC) with an update on the Oregon Public Employees Retirement Fund (OPERF) currency project, and discuss various approaches to currency management.

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.”

Foreign currency (FX) exposure is a risk, but currently neither the OIC nor the investment division of the Oregon State Treasury (OST) has a FX risk management policy or program. As part of its annual engagement plan, OST’s Internal Audit Services group has been working with OST investment staff to evaluate FX risks to OST-managed portfolios and propose potential risk-mitigating FX management solutions.

During the December 7th, 2016 OIC meeting, OST investment staff discussed OPERF’s FX exposure and why currency risk matters. OPERF delivers U.S. dollar-based beneficiary payments to the Public Employees Retirement System (PERS), yet almost one-third of OPERF’s assets are denominated in foreign currencies. Moreover, while this FX exposure represents an explicit source of OPERF asset volatility, it (the FX exposure) provides no corresponding return premium.

For U.S.-based investors, currency risk manifests during strong (i.e., appreciating) dollar periods. For example, and in the absence of some form of FX risk protection, the value of OPERF’s foreign assets (as measured in U.S. dollar terms) *declines* when the dollar *appreciates*.

After several months of research and analysis, staff’s primary findings include the following:

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

Discussion

This currency project update is centered on how best to manage OPERF’s FX risk. Generally, there are four FX risk management approaches:

- Do nothing (i.e., maintain the OPERF status quo);
- Passively hedge OPERF’s FX exposures;
- Actively hedge OPERF’s FX exposures; and
- Include/consider OPERF’s FX exposures in one or more Absolute Return investment strategies.

In the accompanying presentation material, staff compared and contrasted each of the above-listed FX risk management approaches. Respective performance impacts are also illustrated.

Using Council feedback from this and related discussions, staff will develop and propose a currency management policy for OIC approval at a future, scheduled meeting.

Staff Recommendation

None, information only.



OPERF Currency Project Update

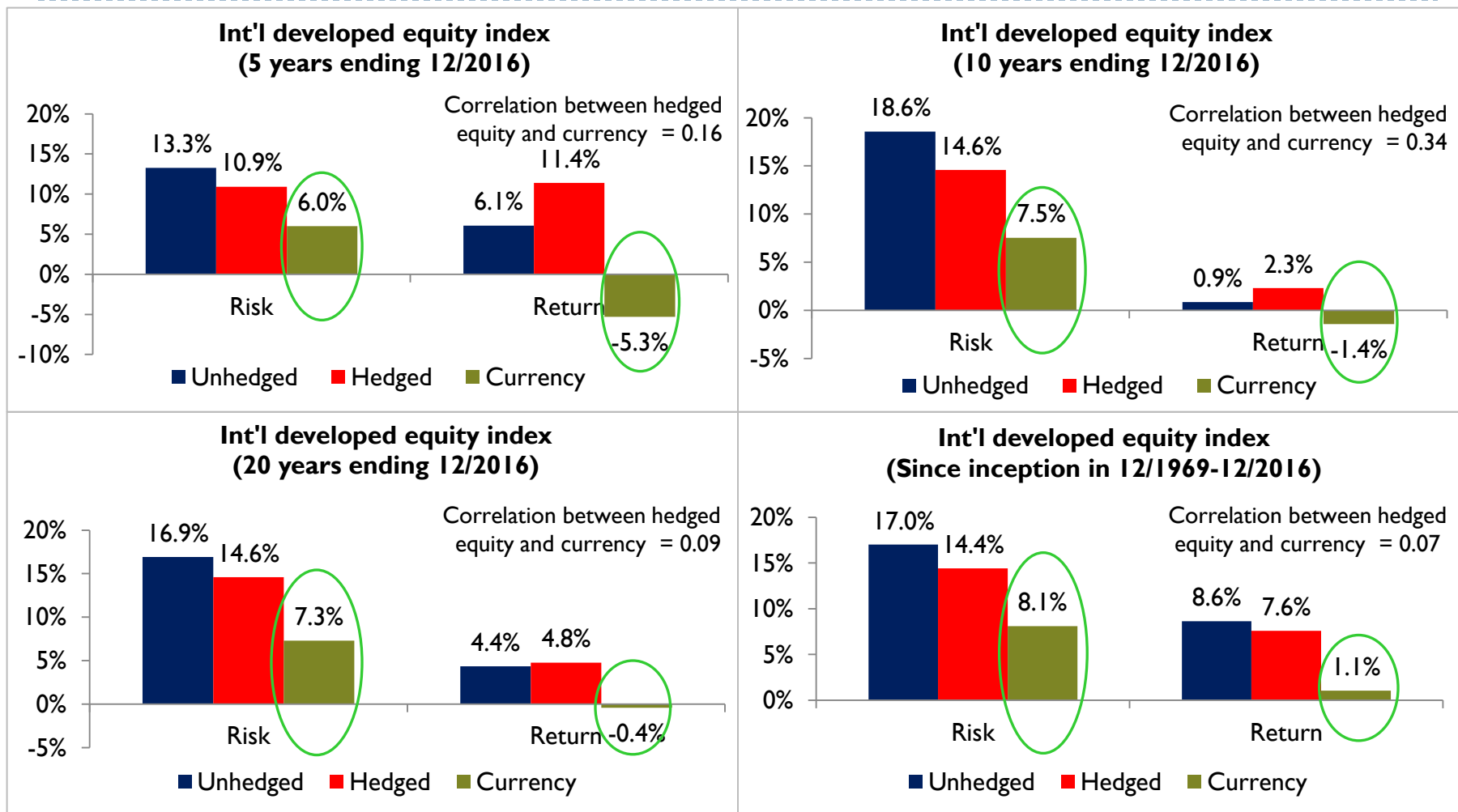
March 15, 2017

Recap from December 2016 OIC Meeting

- ▶ The Oregon Public Employees Retirement Fund (OPERF or the Fund) has a U.S. Dollar (USD) liability in the form of its benefit payment obligations.
- ▶ OPERF has foreign currency (FX) exposure due to its investments in non-U.S. assets (approximately 30% of total Fund capital).
- ▶ This analysis is focused only on the Fund's non-U.S. public equity investments (approximately 18% of total Fund capital).
- ▶ Currency fluctuations contribute meaningfully to OPERF's total risk.
- ▶ OIC currently has no currency risk management policy or program.
- ▶ Unmanaged currency exposure is a source of uncompensated risk.

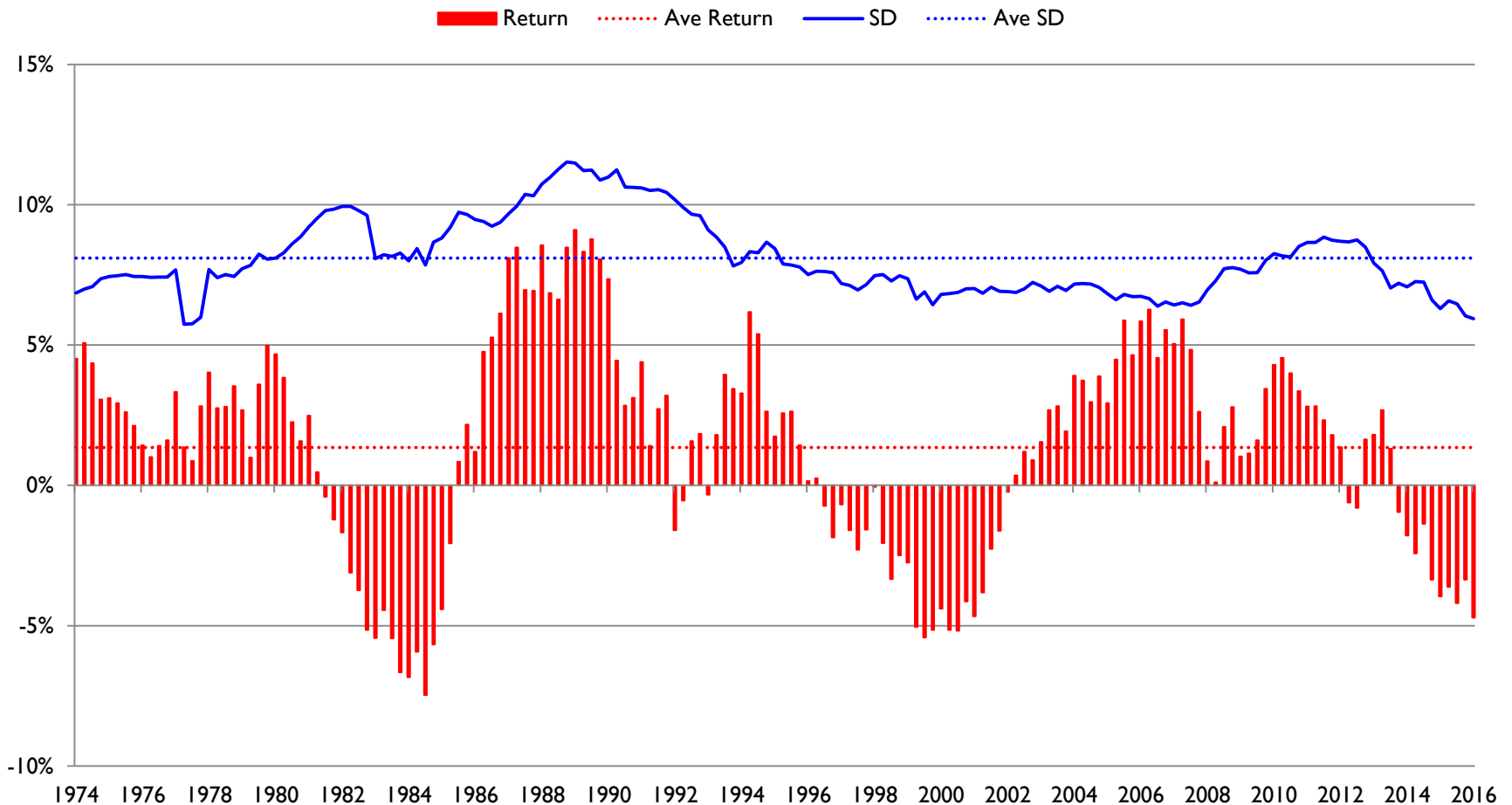


Uncompensated Currency Risk



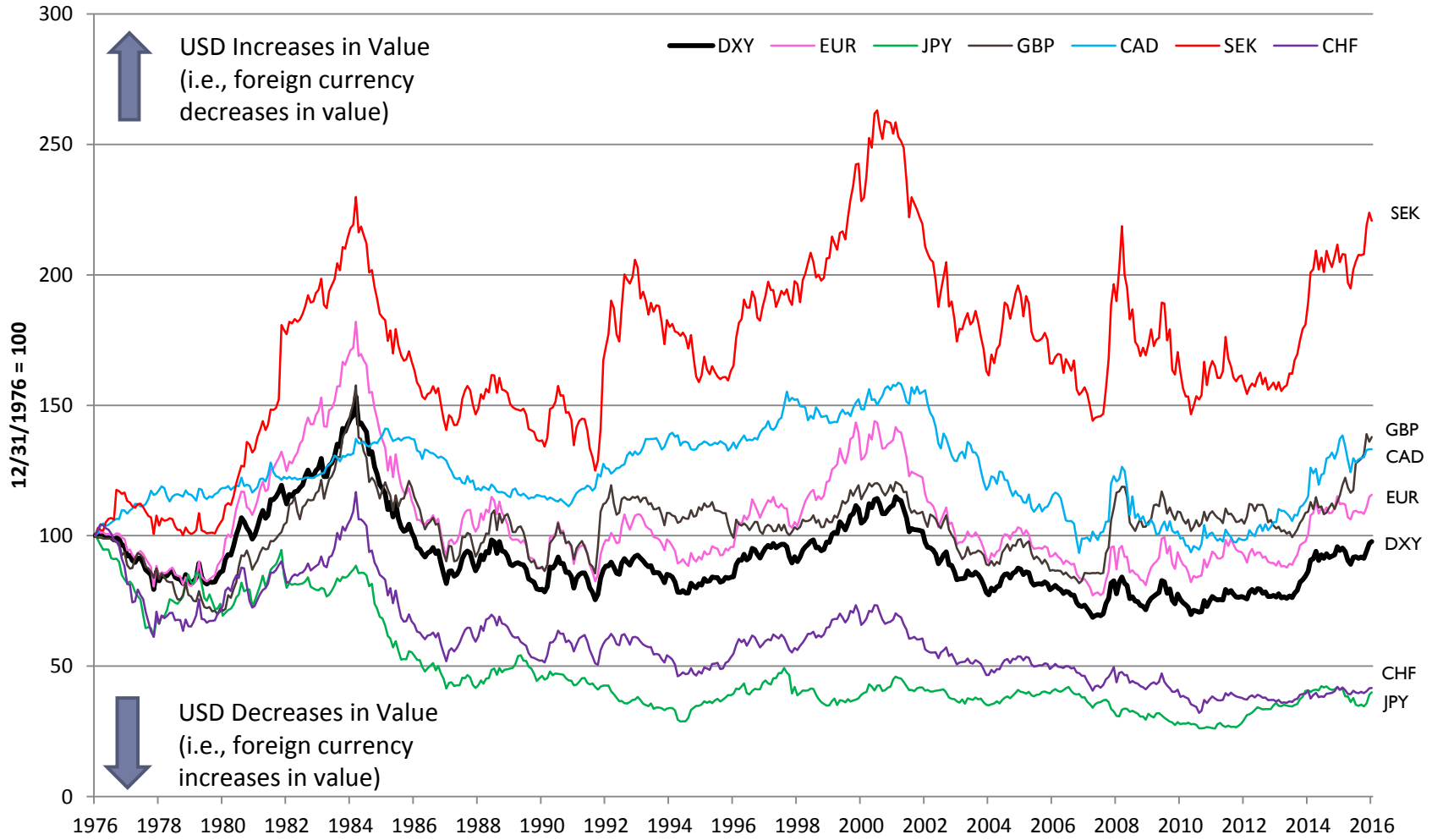
Source: OST Staff Calculation; MSCI.

Five-Year Annualized Return & Volatility of Currencies



Currency Return estimated as the difference between the return of MSCI World ex-U.S. in USD and that of the index in local currencies.

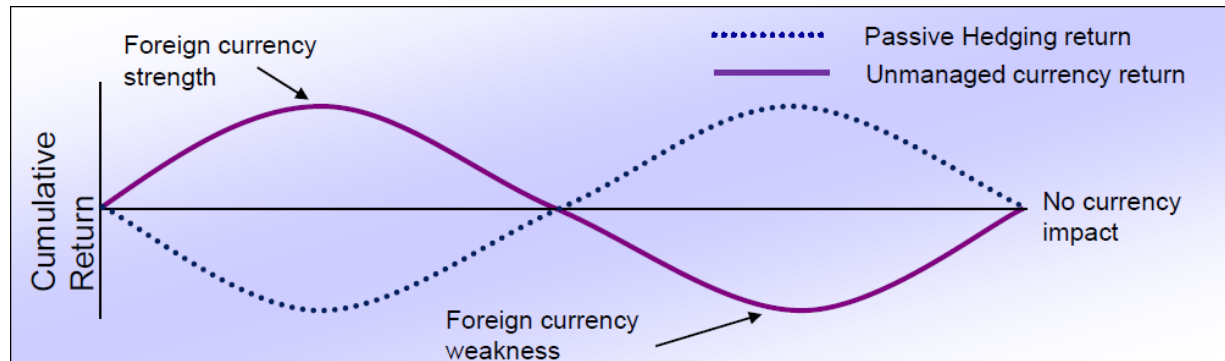
U.S Dollar Index (DXY) and USD versus Major Foreign Currencies



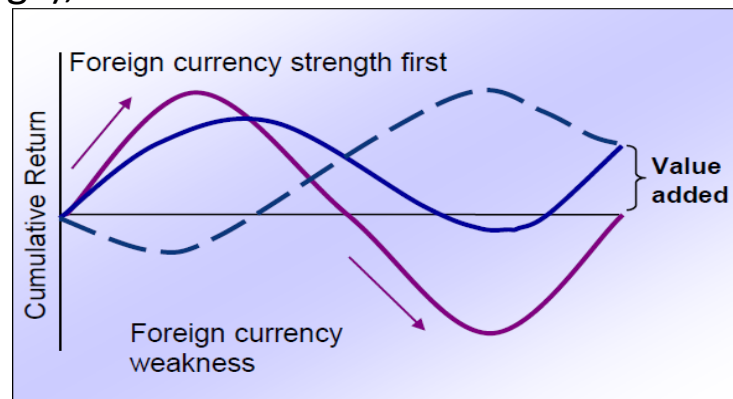
Source: Bloomberg

Approaches to Currency Management

1. Do nothing;
2. Passively hedge FX exposures (i.e., hedge every FX exposure back to USD);



3. Actively hedge FX exposures (i.e., grant discretion to a currency manager within a pre-specified range); or



- Risk managed return = Active Hedging return + Unmanaged currency return
- - - Active Hedging return
- Unmanaged currency return

4. Repurpose currency risk for absolute return.

Source: Record Currency Management

1. Do Nothing

Pros

- ▶ Requires no operational effort or currency manager oversight.
- ▶ No additional currency management costs.

Cons

- ▶ FX exposure is a by-product of international stock selection.
- ▶ OPERF's FX exposures are dictated almost entirely by the market capitalizations of foreign countries comprising OPERF's non-U.S. public equity portfolio benchmark. For example, the MSCI All Country World ex-U.S. Investment Market Index (MSCI ACWI ex-U.S. IMI) has a 13.3% and a 17.8% exposure to the British Pound (GBP) and Japanese Yen (JPY), respectively.
- ▶ Currency risk has no expected return, but contributes meaningfully to total Fund risk.
- ▶ Historical drawdowns associated with currency risk can be significant.

2. Passive Hedging

- ▶ A currency manager monitors the FX exposures in OPERF's non-U.S. public equity portfolio and mechanically hedges these exposures back to USD.
- ▶ The target FX exposure hedged back to USD is called the “hedge ratio” and ranges from 0% to 100%.
- ▶ Implementation timing is an implicit call that USD will (continue to) appreciate versus foreign currencies.

Pros

- ▶ Portfolio risk reduction.
- ▶ Low currency management fees. Transaction costs for developed market (DM) currencies are low single-digit basis points, while those for emerging market (EM) currencies are much higher.

Cons

- ▶ Zero expected return.
- ▶ Negative cash flow when USD weakens.

3. Active Hedging

- ▶ A currency manager monitors the non-U.S. public equity portfolio's FX exposures and adjusts the hedge ratio as a function of the manager's a) investment approach (see Appendix) and/or b) assessment of specific currency pairs.
- ▶ A (diminished) currency risk remains since the manager may not fully hedge all FX exposures at all times.
- ▶ A (diminished) timing component also exists, but the manager would have discretion over how much to hedge each specific currency exposure. For example, the manager may elect to hedge the maximum allowable GBP exposure while simultaneously hedging the minimum JPY exposure.

Pros

- ▶ Potential to achieve asymmetric pay-off and manage negative cash flow events.
- ▶ Currency manager targets modest return while reducing portfolio risk.

Cons

- ▶ Currency manager's investment thesis could be wrong (i.e., not value-accretive).
- ▶ Typical management fees of approximately 5 to 20 basis points of target notional exposure.

4. Absolute Return

Pros

- ▶ Return generation objective with various implementation approaches. As an example, one large state plan uses its fund's currency risk as a “risk budget” for absolute return strategies. Specifically, its fund's FX exposures are passively hedged while a set of currency managers are hired to generate “alpha”.

Cons

- ▶ Possibility of increasing portfolio risk. Currency risk remains, but it likely has little relationship with the underlying investments. For example, a fund could have a “negative” hedge to Swiss Franc (CHF), i.e., a greater CHF exposure than that of the fund's underlying investments, as a result of the aggregated sentiment of the fund's currency managers.
- ▶ High fees as managers in this strategy space typically use hedge fund structures and “2 & 20” fee schedules.

Summary of Currency Management Approaches

	Do Nothing	Passive Hedging	Active Hedging	Absolute Return
Pros	<ul style="list-style-type: none"> Requires no action No additional currency management cost 	<ul style="list-style-type: none"> Portfolio risk reduction Low currency management fees 	<ul style="list-style-type: none"> Modest return generation objective Downside cash flow management Potential to achieve asymmetric pay-offs 	<ul style="list-style-type: none"> Meaningful return generation objective
Cons	<ul style="list-style-type: none"> Unintended FX allocation Meaningful FX risk Large historical drawdown 	<ul style="list-style-type: none"> Zero expected return Negative cash flow when USD weakening 	<ul style="list-style-type: none"> Wrong investment thesis detracts value Management fees of 5 to 20 bps 	<ul style="list-style-type: none"> Possibility of risk increase High management fees

Performance Impact of Currency Management Approaches

Scenario	FX Impact on	Do Nothing	100% Passive Hedging	Active Hedging	Absolute Return
USD Down 10%	Int'l Stock	+10%	+10%	+10%	+10%
	FX Program	None	-10%	Decline less than -10%	> 0%
	Net Performance	+10%	0%	> 0%	> +10%
USD Up 10%	Int'l Stock	-10%	-10%	-10%	-10%
	FX Program	None	+10%	+10%	> 0%
	Net Performance	-10%	0%	0%	Decline less than -10%

Other Considerations

▶ Hedge Ratio (HR)

- ▶ HR = the FX exposure hedge target, ranging from 0% to 100%. 0% is “Do Nothing”, while 100% hedges entirely back to USD. A 50% HR may be the “path of least regret”.
- ▶ An argument supporting a less than 100% HR is the complexity inherent in a multi-national company’s currency exposure. For example, Toyota Motor Corporation is listed in JPY but has a global operation. Other companies, such as Royal Dutch Shell PLC, harvest global commodities and are less sensitive to listed currencies.

▶ Developed and/or Emerging Country Currencies

- ▶ DM and EM currency programs can be evaluated separately. Approximately 80% of OPERF’s non-U.S. public equity FX exposures are denominated in DM currencies.
- ▶ EM currency trading costs are much higher than DM currency trading costs due to EM currency liquidity constraints. According to the Bank for International Settlements, approximately \$5.4 trillion of FX was traded daily in April 2016. Of that volume, U.S. Dollar/Euro pair trading comprised 23.0% while U.S. Dollar/Korean Won pair trading comprised only 1.5%. Yet South Korea is the second largest country in the MSCI Emerging Markets Index!
- ▶ EM currencies tend to outperform DM currencies due to nominal appreciation and higher average interest rates.

Next Steps

Staff will soon propose a currency management policy using OIC feedback and directives from this discussion. In researching this topic, Staff leans toward the following ideas for OIC consideration:

1. Implement Active FX Hedging Management. OPERF's currency exposure is a source of uncompensated risk that should be managed. While Passive Hedging would be cheaper, Active Hedging would mitigate "timing" concerns.
2. Implement a target hedge ratio. Fully hedging FX exposures would eliminate currency risk, but there is a reasonable counterargument that such an approach may also over-hedge actual economic exposures. An Active Hedging strategy with a band around a 50% hedge ratio target seems like a reasonable compromise.
3. Implement an initial, DM-only approach. This approach does not preclude adding an EM component later, and provides additional time to better evaluate the prospective cost-benefit profile of EM currency hedging activities.

Appendix: Active Currency Strategies

- ▶ **Quantitative/systematic investment approach.** Some well-documented systematic factors include:
 - ▶ Carry (sell a lower-yielding currency to buy a higher-yielding currency);
 - ▶ Value (such as purchasing power parity); and
 - ▶ Momentum (buy currencies with positive trends and sell currencies with negative trends).
- ▶ **Fundamental investment approach using a global macro perspective:**
 - ▶ Monetary and fiscal policies;
 - ▶ Global trade dynamics; and
 - ▶ Economic measures.
- ▶ **Option replication approach using a single price input to:**
 - ▶ Hedge currency exposure by entering multiple sub-period derivative currency contracts;
 - ▶ Systematically and frequently adjust hedge ratio in response to USD strength/weakness;
 - ▶ Open and maintain profitable hedges and close unprofitable ones; and
 - ▶ Performs best in trending environments.

TAB 9 – Q4 2016 Performance & Risk Report

OPERF

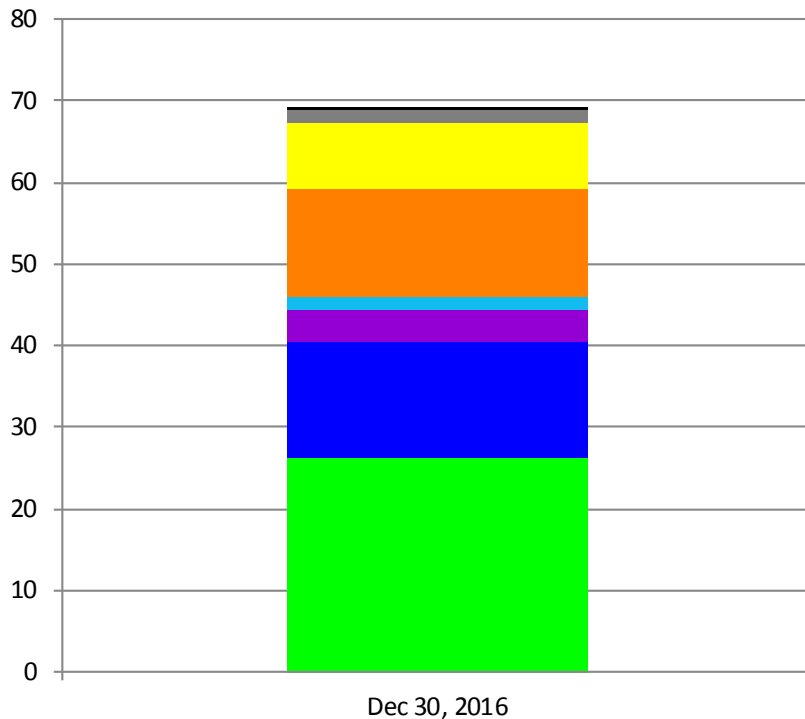


2016 Q4 OPERF Risk Dashboard

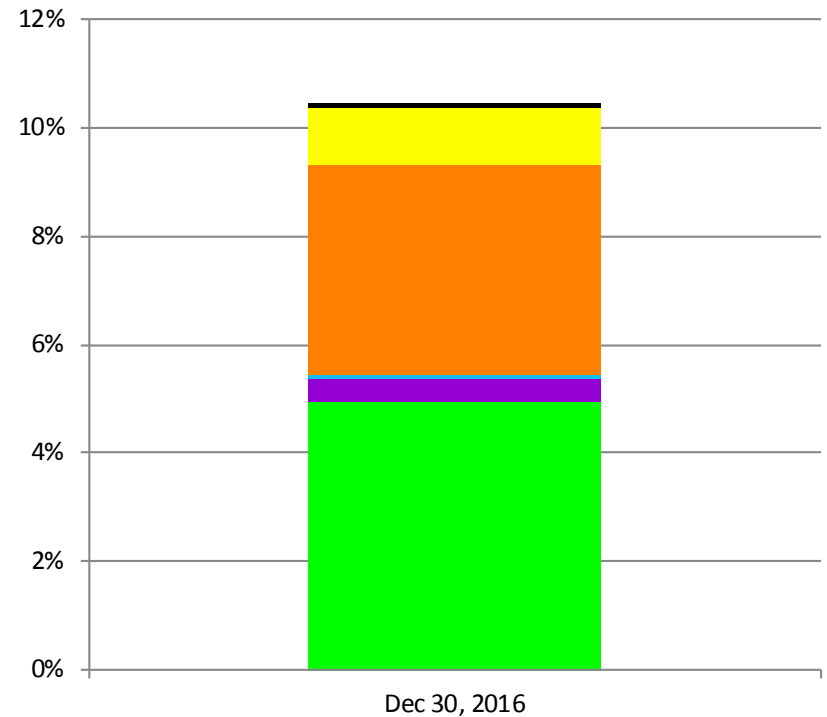
March 15, 2017

Capital Allocation & Risk Contribution by Asset Class

Allocation in \$B

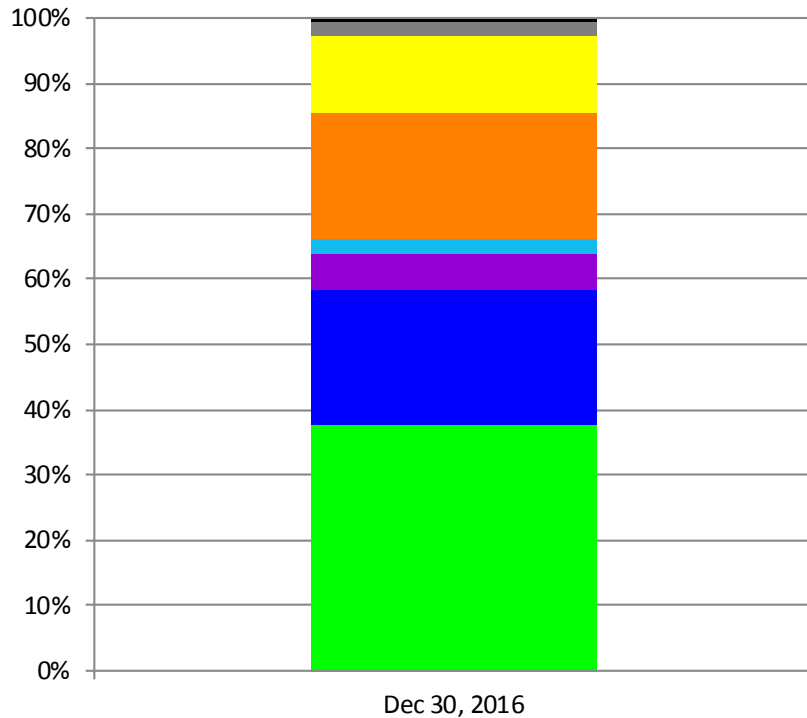


Risk Contribution



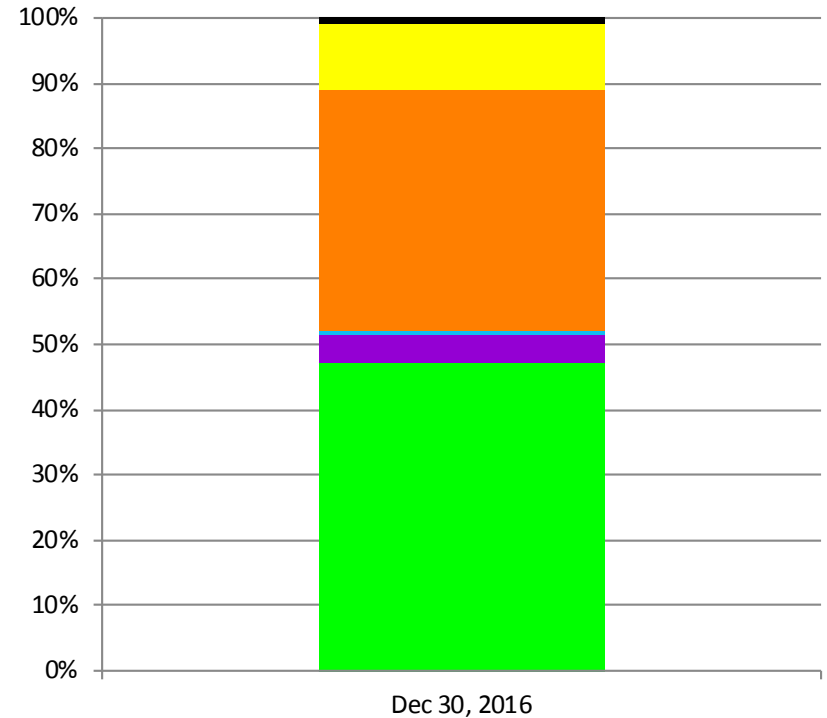
Scaled Capital Allocation & Risk Contribution by Asset Class

Allocation % of Total



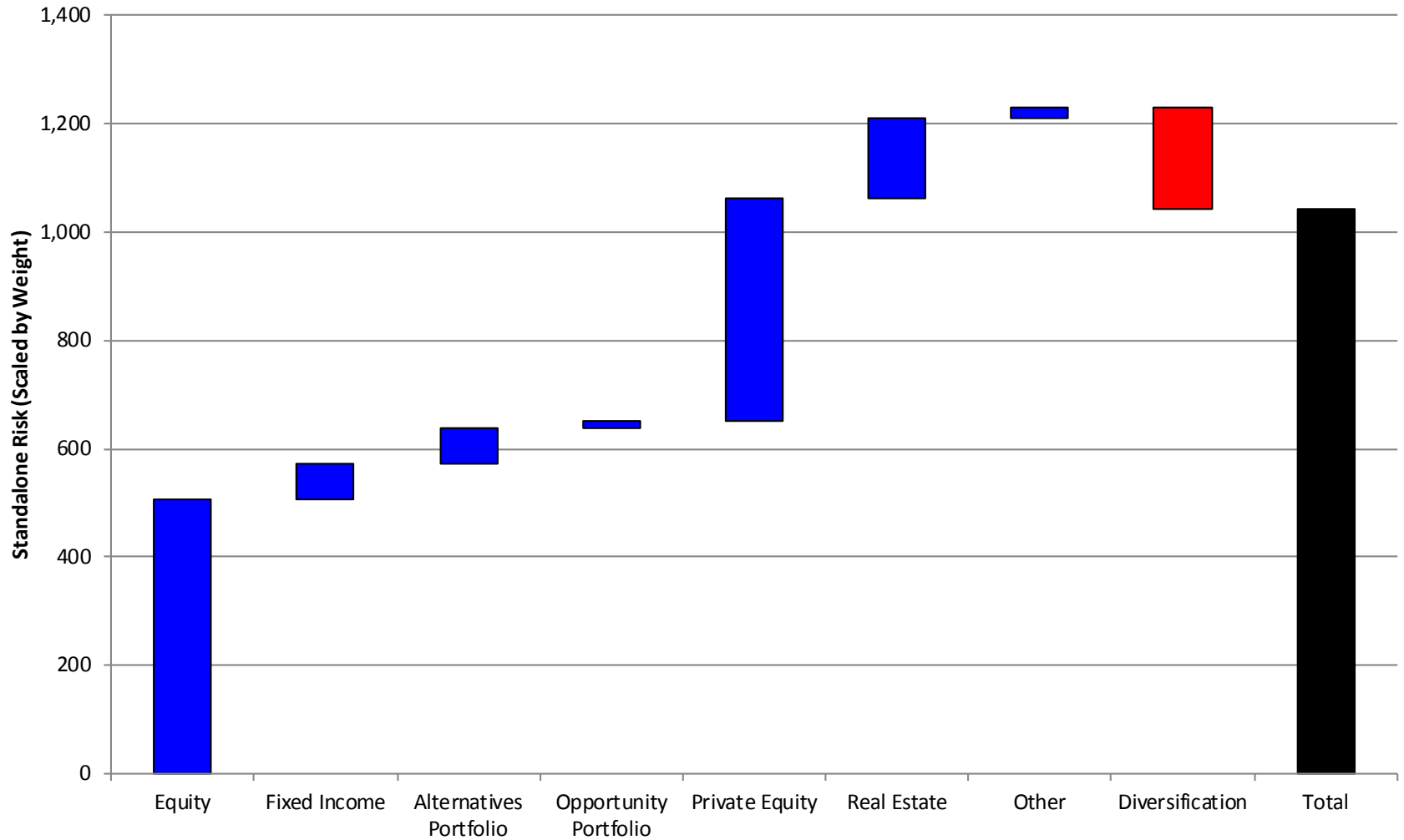
- Equity
- Fixed Income
- Alternatives Portfolio
- Opportunity Portfolio
- Private Equity
- Real Estate
- Cash
- Overlay

Risk Contribution % of Total



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

Standalone Risk by Asset Class

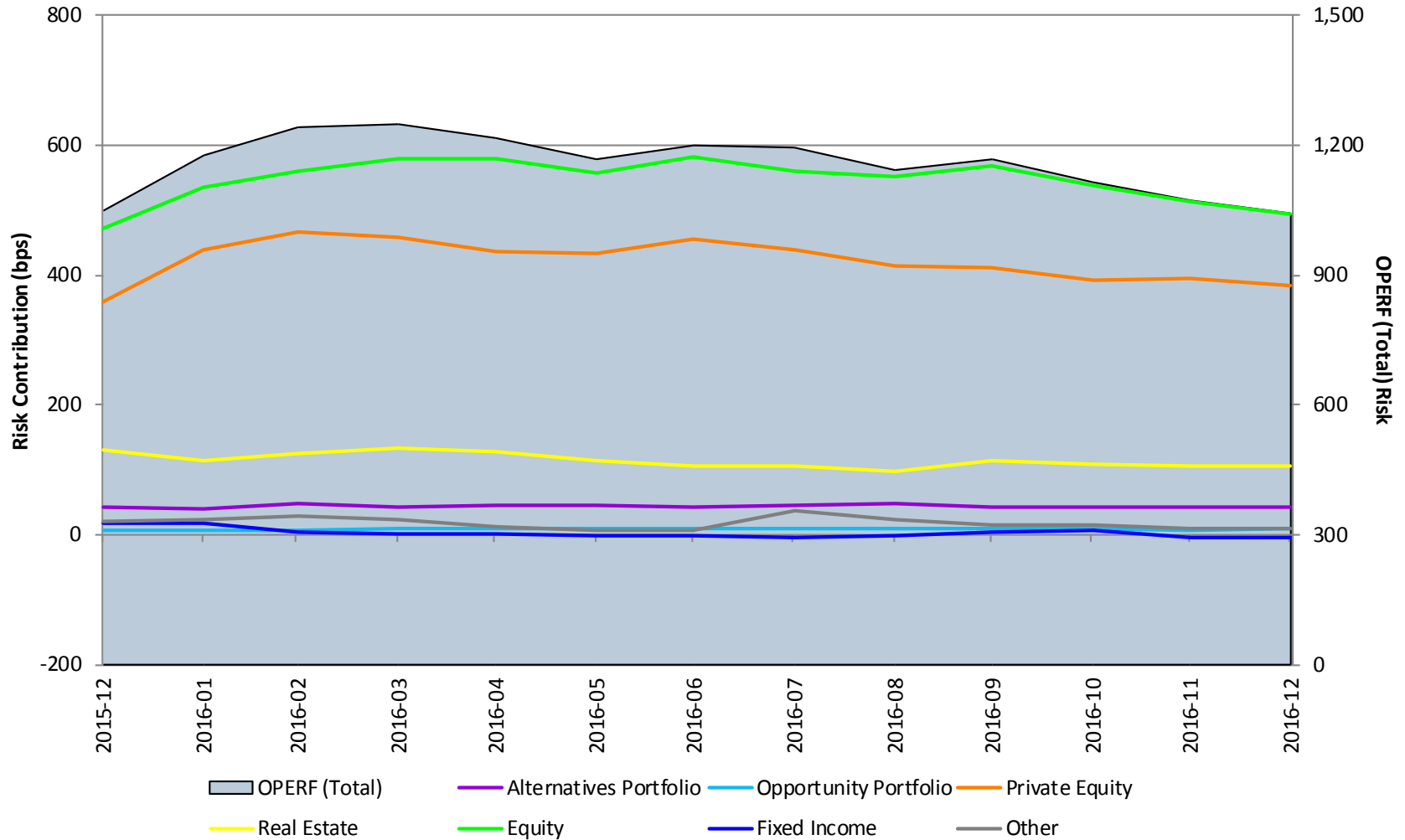


Correlation Matrix by Asset Class

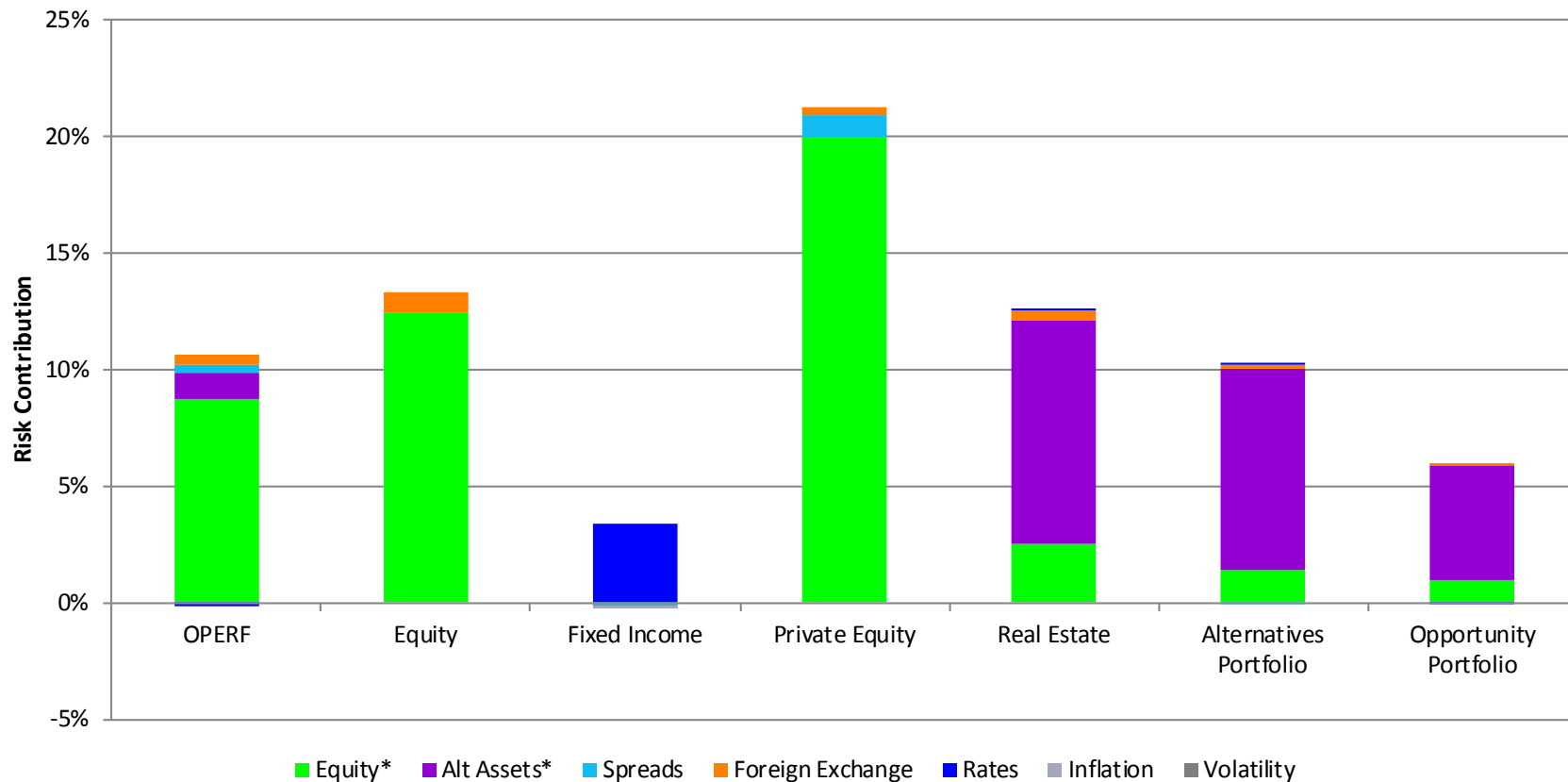
Dec 30, 2016	Equity	Fixed Income	Alternatives Portfolio	Opportunity Portfolio	Private Equity	Real Estate	OPERF
Equity	1.00	-0.11	0.55	0.67	0.86	0.61	0.97
Fixed Income		1.00	-0.09	-0.05	-0.24	0.26	-0.05
Alternatives Portfolio			1.00	0.50	0.56	0.40	0.62
Opportunity Portfolio				1.00	0.66	0.39	0.69
Private Equity					1.00	0.50	0.93
Real Estate						1.00	0.70
OPERF							1.00

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

Risk Contribution by Asset Class

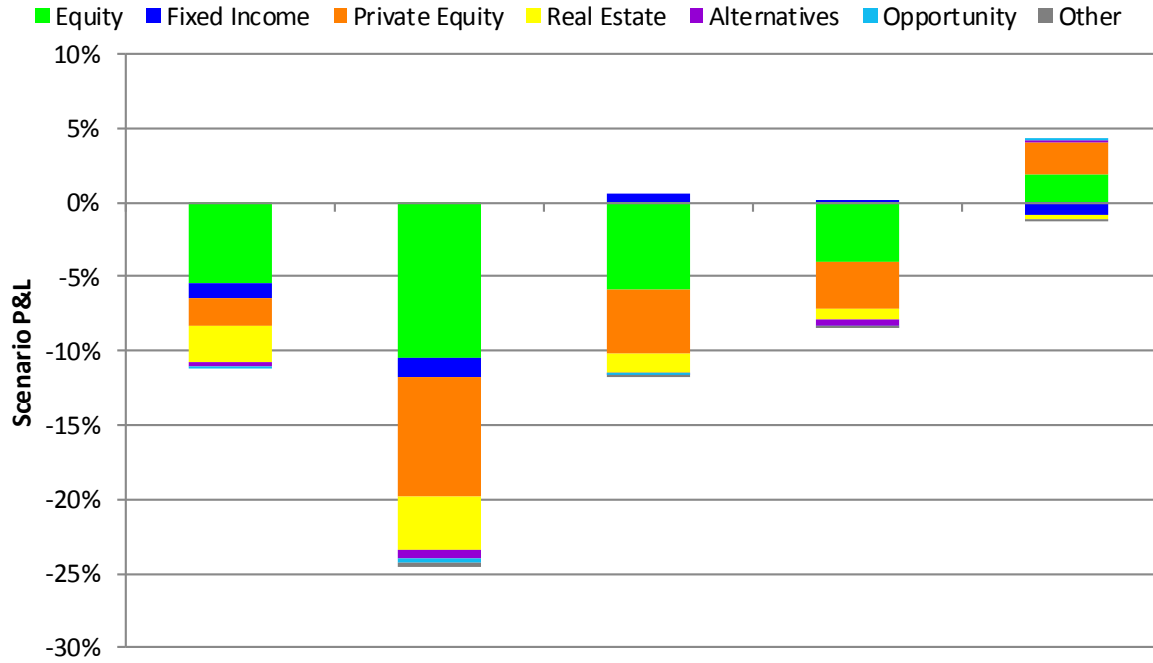


Risk Contribution by Factor Group



*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.

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%	U.S. 10-Yr + 100 bps
Equity	-5.4%	-10.5%	-5.9%	-4.0%	1.9%
Fixed Income	-1.1%	-1.3%	0.6%	0.1%	-0.8%
Private Equity	-1.8%	-8.0%	-4.3%	-3.1%	2.2%
Real Estate	-2.5%	-3.7%	-1.3%	-0.8%	-0.3%
Alternatives	-0.3%	-0.5%	-0.1%	-0.3%	0.2%
Opportunity	-0.1%	-0.4%	-0.1%	-0.1%	0.0%
Other	0.0%	-0.3%	-0.1%	-0.1%	0.0%
Total	-11.2%	-24.6%	-11.1%	-8.3%	3.1%

Liquidity Report

Asset Class	Liquidity (\$M)				∞	Uncalled Commitment	Next 12 Months
	1 Week	1 Month	1 Quarter				
Cash & Overlay	1,778						
Public Equity	23,601	1,683	1,028				
Fixed Income	11,280	2,407					
Private Equity				13,874	-9,078		
Real Estate	1,974			6,690	-2,261		
Alternatives	220			3,814	-2,467		
Opportunity				1,473	-690		
Pension Benefits							-3,500
Total	38,853	4,089	1,028	25,850	-14,495		-3,500

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	6,672	9.6%	Cash, Public Equity
2	Dimensional Fund Advisors	4,971	7.1%	Public Equity
3	BlackRock	3,788	5.4%	Fixed Income, Public Equity
4	AB (f/k/a AllianceBernstein)	3,672	5.3%	Fixed Income, Public Equity
5	Wellington	3,307	4.7%	Fixed Income, Public Equity
6	KKR	3,156	4.5%	Fixed Income, Private Equity
7	Western Asset Management	2,816	4.0%	Fixed Income
8	AQR	2,557	3.7%	Alternatives, Public Equity
9	Arrowstreet Capital	1,641	2.3%	Public Equity
10	Lazard	1,441	2.1%	Public Equity



March 15, 2017



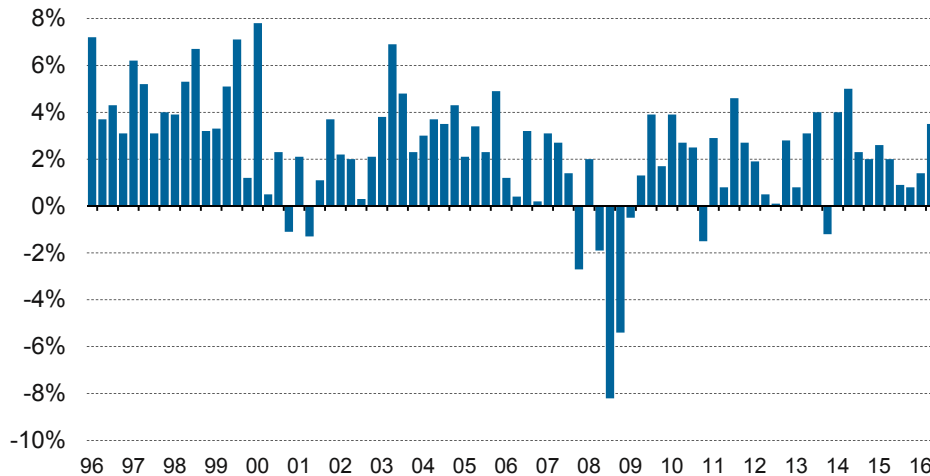
Oregon Investment Council

Fourth Quarter 2016
Performance Review

Economic Commentary

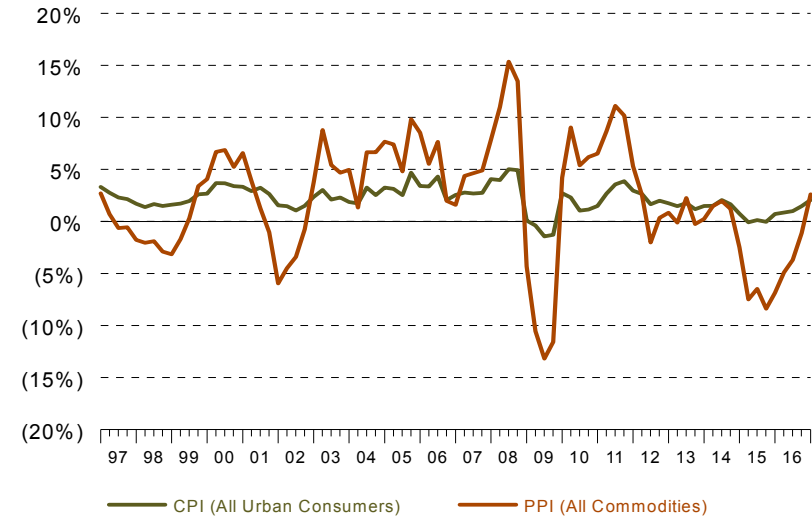
Fourth Quarter 2016

Quarterly Real GDP Growth (20 Years)



Source: Bureau of Economic Analysis

Inflation Year-Over-Year



Source: Bureau of Labor Statistics

- The U.S. economic picture continued to improve during the final quarters of 2016. Third quarter GDP was revised up to 3.5% (1.7% year-over-year), the sharpest quarterly increase in two years. Growth was supported by exports, inventories, and consumer spending.
- Job growth averaged 165,000 in the fourth quarter and totaled 2.2 million in 2016, down from 2.7 million in 2015. Unemployment reached a nine-year low of 4.6% in November before ticking up slightly to 4.7% in December. The labor force participation rate remained range bound at 62.7%. Expectations of higher inflation from wage growth resurfaced as average hourly earnings increased 0.4% in December and are up 2.9% over the year.
- Inflation, while still tame, is rising. For the trailing 12 months ended December, headline CPI was +2.1%, the most since 2014, and Core CPI (excluding food and energy) was slightly higher at +2.2%.

Market Summary – Fourth 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	4.21	12.74	8.43	14.67	7.07	7.11
S&P:500	3.82	11.96	8.87	14.66	6.95	6.69
Russell:1000 Index	3.83	12.05	8.59	14.69	7.08	7.00
Russell:1000 Growth	1.01	7.08	8.55	14.50	8.33	6.42
Russell:1000 Value	6.68	17.34	8.59	14.80	5.72	7.41
Russell:Midcap Index	3.21	13.80	7.92	14.72	7.86	9.51
Russell:Midcap Growth	0.46	7.33	6.23	13.51	7.83	7.96
Russell:Midcap Value	5.52	20.00	9.45	15.70	7.59	10.28
Russell:2000 Index	8.83	21.31	6.74	14.46	7.07	8.49
Russell:2000 Growth	3.57	11.32	5.05	13.74	7.76	7.48
Russell:2000 Value	14.07	31.74	8.31	15.07	6.26	9.22
U.S. Fixed Income:						
Blmbg:Aggregate Idx	(2.98)	2.65	3.03	2.23	4.34	4.58
Blmbg:Gov/Credit	(3.39)	3.05	3.04	2.29	4.40	4.65
Blmbg:Long Gov/Cr	(7.84)	6.67	7.16	4.07	6.85	7.03
Blmbg:Gov/Cred 1-3Y	(0.39)	1.28	0.90	0.92	2.44	2.72
Blmbg:Credit	(2.97)	5.63	4.07	3.85	5.31	5.51
Blmbg:Mortgage Idx	(1.97)	1.67	3.07	2.06	4.28	4.47
Blmbg:Corp High Yld	1.75	17.13	4.66	7.36	7.45	8.35
Blmbg:US Universal	(2.61)	3.91	3.27	2.78	4.57	4.92
Real Estate:						
NCREIF:Total Index	1.73	7.97	11.02	10.91	6.93	9.00
FTSE:NAREIT Composite Idx	(2.97)	9.37	12.40	11.72	4.51	10.19
Global Equity:						
MSCI:ACWI Gross	1.30	8.48	3.69	9.96	4.12	6.46
MSCI:ACWI IMI	1.27	8.36	3.25	9.62	3.84	6.45
Non-U.S. Equity:						
MSCI:EAFE	(0.71)	1.00	(1.60)	6.53	0.75	5.28
MSCI:EAFE LC	7.07	5.34	5.53	11.84	2.19	4.26
MSCI:ACWIxUS Gross	(1.20)	5.01	(1.32)	5.48	1.42	6.33
MSCI:ACWI ex US LC	4.93	7.02	4.95	10.05	2.58	5.02
MSCI:ACWI ex US Small Cap	(3.52)	3.91	0.76	7.74	2.89	9.64
MSCI:EM Gross	(4.08)	11.60	(2.19)	1.64	2.17	9.85
Other:						
3 Month T-Bill	0.09	0.33	0.14	0.12	0.80	1.34
US DOL:CPI All Urban Cons	0.00	2.07	1.18	1.36	1.81	2.10

- A "risk-on" environment prevailed throughout the fourth quarter shaped by the U.S. presidential election and the expectation of decreased regulation and lower taxes under the Trump administration. Equity market volatility, as measured by the VIX, started the quarter low and spiked in early November, falling back by year-end.
- A consistently strengthening dollar led to falling net exports presenting a headwind for the emerging markets rally throughout the middle of the year.
- After holding the line at their November meeting, the Federal Open Market Committee (FOMC) moved their target overnight rate to 0.50-0.75% in December in a unanimous vote. The 10-year Treasury yield spiked as bonds sold off immediately following the announcement but closed the month roughly where they started.
- The 3.5% final estimate of third quarter GDP was the highest rate of growth in two years. The first estimate of fourth quarter GDP came in at a disappointing 1.9% on lower net exports. Despite the lower than expected growth, personal consumption expenditures, residential investment and business investment were all positive contributors.
- Unemployment fell to 4.7% in December. This is a 0.3% improvement from the beginning of 2016 despite a labor force participation rate that has only increased 0.1% to 62.7% over the same time frame.
- After four months of gains, higher energy prices helped boost headline CPI to 2.1% year-over-year in December. Core CPI was up 2.2% over the same time period.
- The Bank of Japan (BOJ) and the euro zone began the fourth quarter with easy money policy. In Japan, the BOJ continued the strategy of yield curve control. Since its implementation, the long end of the curve has risen more sharply than expected prompting another round of bond purchases in an attempt to control the ascent. Consumer prices are still declining, but at a slower rate. In the euro zone, the consumer price index rose 1.1% year-over-year at the end of December. Unemployment decreased to 9.8% as of November, and third quarter GDP rose 0.3% for the quarter and 1.7% year-over-year.

Market Summary

Fourth Quarter 2016

Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Russell:2000 Index 8.8%	Russell:2000 Index 21.3%	NFI-ODCE Val Gross 12.1%	Russell:3000 Index 14.7%	ML:High Yield CP Idx 7.3%
Russell:3000 Index 4.2%	ML:High Yield CP Idx 17.3%	S&P:500 8.9%	S&P:500 14.7%	Russell:3000 Index 7.1%
S&P:500 3.8%	Russell:3000 Index 12.7%	Russell:3000 Index 8.4%	Russell:2000 Index 14.5%	Russell:2000 Index 7.1%
NFI-ODCE Val Gross 2.1%	S&P:500 12.0%	Russell:2000 Index 6.7%	NFI-ODCE Val Gross 12.2%	S&P:500 6.9%
ML:High Yield CP Idx 1.9%	MSCI:EM Gross 11.6%	ML:High Yield CP Idx 4.7%	ML:High Yield CP Idx 7.3%	NFI-ODCE Val Gross 5.8%
3 Month T-Bill 0.1%	NFI-ODCE Val Gross 8.8%	Blmbg:Aggregate Idx 3.0%	MSCI:ACWI ex US 5.0%	Blmbg:Aggregate Idx 4.3%
MSCI:ACWI ex US (1.3%)	MSCI:ACWI ex US 4.5%	3 Month T-Bill 0.1%	Blmbg:Aggregate Idx 2.2%	MSCI:EM Gross 2.2%
Blmbg:Aggregate Idx (3.0%)	Blmbg:Aggregate Idx 2.6%	MSCI:ACWI ex US (1.8%)	MSCI:EM Gross 1.6%	MSCI:ACWI ex US 1.0%
MSCI:EM Gross (4.1%)	3 Month T-Bill 0.3%	MSCI:EM Gross (2.2%)	3 Month T-Bill 0.1%	3 Month T-Bill 0.8%

OPERF Total Regular Account

Performance Summary for the Fourth Quarter 2016

Total Fund:

In the fourth quarter of 2016, the Total Regular Account added 1.16% (+1.08% net of fees), just falling behind the 1.29% return for the Policy Target, but ranked in 30th percentile of the \$10B+ public fund peer group. For the 12 months ended December 31, 2016, the Account gained 7.14% (+6.84% net of fees) versus 9.04% for the Policy Target, and ranked in the 84th percentile of Callan's \$10B+ public fund peer group.

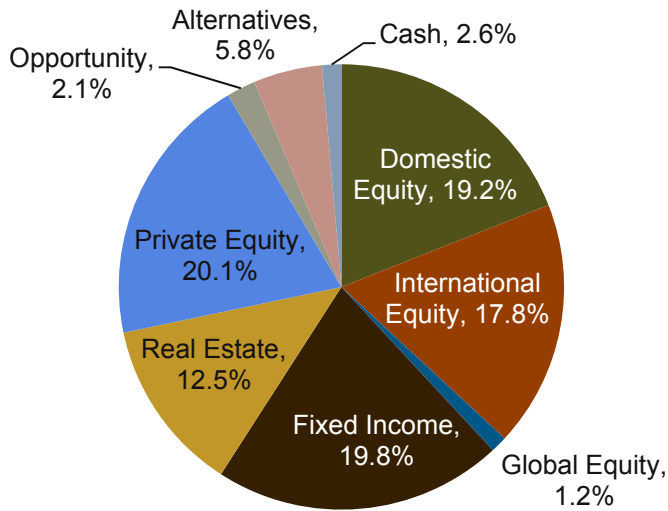
Asset Classes:

- **U.S. Equity:** The U.S. Equity Portfolio rose 6.29% (+6.26% net of fees) for the quarter, beating the 4.21% gain in the Russell 3000 Index, and ranked the Portfolio in the top decile of Callan's Public Fund: \$10B+ Domestic Equity (gross) peer group. On a trailing 12 month basis, the Portfolio surged 15.02% (+14.09% net of fees) versus an increase of 12.74% for the benchmark and ranked in the top quintile of the peer group. 10 year results are slightly behind those of the benchmark on a net of fee basis (+6.95% versus +7.07%) but rank above median versus the peer group.
- **International Equity:** The International Equity Portfolio retreated 1.71% (-1.83% net of fees) for the quarter versus a decline of 1.57% for the MSCI ACWI ex-U.S. IMI Index, and ranked in the top half of Callan's Public Fund: \$10B+ International Equity (gross) peer group. For the trailing year, the Portfolio gained 5.11% (+ 4.67% net of fees), coming in ahead of the benchmark return of 4.41%. This one year return ranked the portfolio just above the median of the peer group. 10 year results remain well ahead of the benchmark and continue to rank in the top quartile of the peer group.
- **Fixed Income:** The Fixed Income Portfolio declined 2.20% (-2.24% net of fees) for the quarter versus a loss of 2.43% for the Custom Benchmark, and ranked in the 53rd percentile of Callan's Public Funds \$10+B US Fixed income (Gross) peer group. For the trailing year, the Portfolio gained 3.29% (+3.06% net of fees), beating the benchmark return of 2.52%, and ranked in the 88th percentile of the peer group. 10 year results continue to be ahead of the benchmark and rank very favorably versus peers.
- **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.

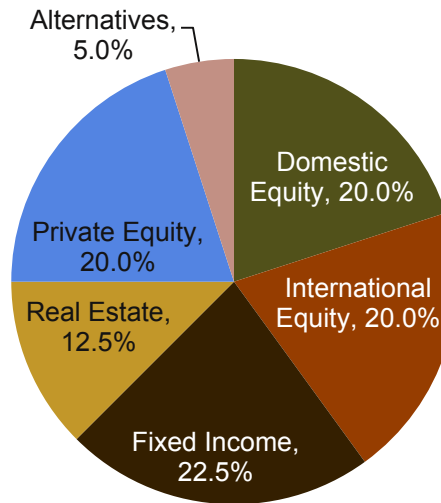
OPERF Total Regular Account

Asset Allocation as of December 31, 2016

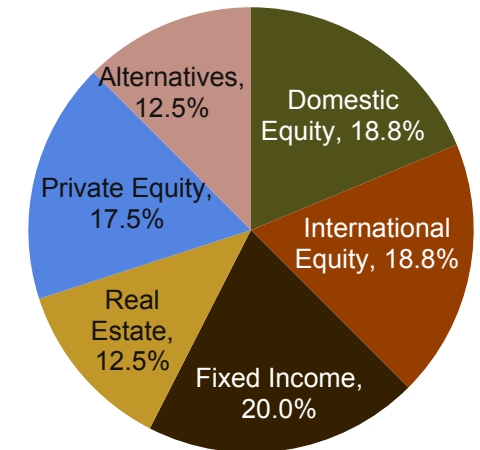
Actual Allocation



Interim Policy Target



Strategic Policy Target*



Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Domestic Equity	13,265,737	19.2%	20.0%	(0.8%)	(544,794)
International Equity	12,275,092	17.8%	20.0%	(2.2%)	(1,535,440)
Fixed Income	13,686,831	19.8%	22.5%	(2.7%)	(1,850,016)
Real Estate	8,663,335	12.5%	12.5%	0.0%	31,754
Private Equity	13,873,866	20.1%	20.0%	0.1%	63,335
Opportunity	1,472,796	2.1%	0.0%	2.1%	1,472,796
Alternative	4,033,611	5.8%	5.0%	0.8%	580,978
Cash	1,781,387	2.6%	0.0%	2.6%	1,781,387
Total	69,052,655	100.0%	100.0%		

*Targets established in June 2015

OPERF Total Regular Account

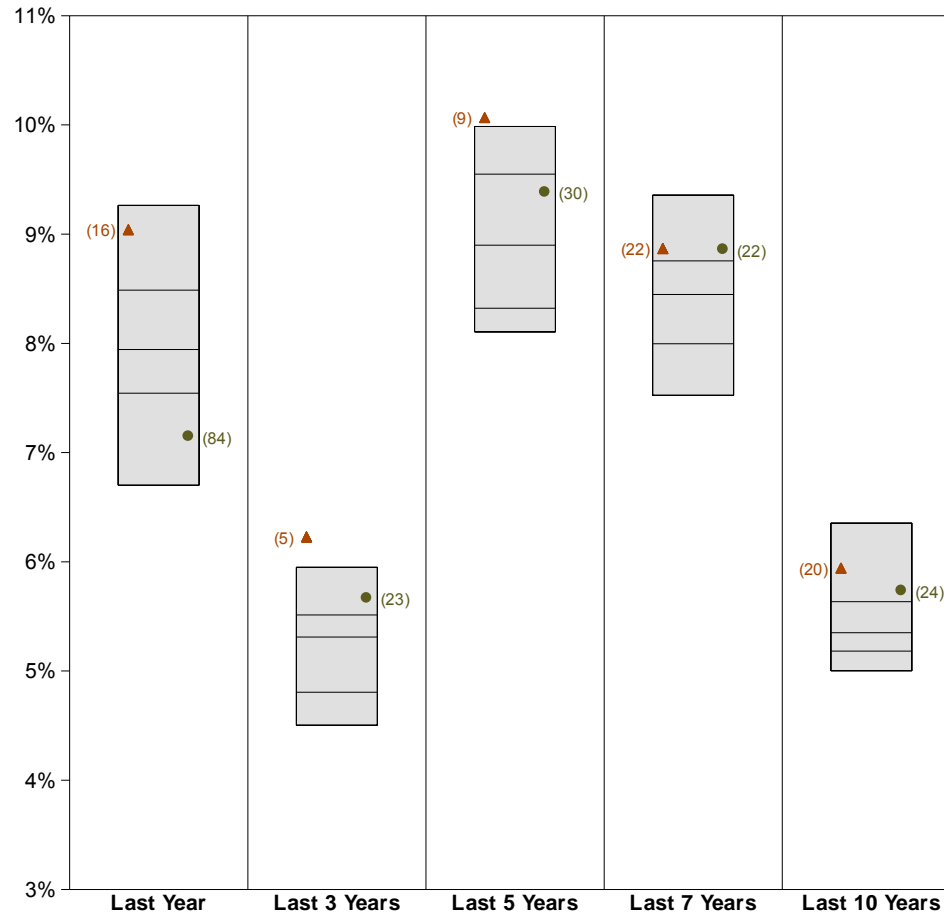
Net Performance by Asset Class as December 31, 2016

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Total Public Equity	2.40%	9.89%	3.71%	10.67%	4.20%
MSCI ACWI IMI Net	1.27%	8.36%	3.25%	9.62%	3.84%
Domestic Equity	6.26%	14.90%	7.75%	14.53%	6.95%
Russell 3000 Index	4.21%	12.74%	8.43%	14.67%	7.07%
Lg Public >10 B DE	4.92%	13.71%	8.35%	14.40%	7.04%
International Equity	(1.83%)	4.67%	(0.33%)	6.91%	2.52%
MSCI ACWI ex-US IMI Index	(1.57%)	4.41%	(1.44%)	5.35%	1.36%
Lg Public >10 B IE	(1.89%)	4.54%	(0.68%)	6.13%	1.87%
Total Fixed Income	(2.24%)	3.06%	2.36%	3.64%	5.26%
Custom FI Benchmark	(2.43%)	2.52%	1.90%	2.88%	4.33%
CAI Pub Fund: 10+ US FI	(2.22%)	5.39%	3.69%	3.19%	4.95%
Total Real Estate	(0.58%)	6.58%	10.17%	11.38%	5.20%
Total Real Estate ex REITs	2.85%	10.01%	11.56%	12.23%	5.69%
NCREIF Property Index Qtr Lag	2.07%	9.62%	11.44%	11.26%	7.26%
Public Plan - Real Estate	0.97%	7.70%	10.70%	11.08%	4.72%
Total Private Equity	3.31%	6.26%	9.90%	12.03%	9.62%
Russell 3000 + 300 BPS Qtr Lag	5.16%	18.37%	13.73%	19.80%	10.99%
Total Alternative	3.22%	6.61%	2.13%	2.29%	-
CPI + 4%	0.99%	6.16%	5.23%	5.41%	-
Opportunity Portfolio	0.11%	2.65%	4.49%	9.22%	6.55%
Russell 3000 Index	4.21%	12.74%	8.43%	14.67%	7.07%
CPI + 5%	1.18%	6.99%	5.90%	6.17%	6.79%
Total Regular Account	1.08%	6.84%	5.39%	9.11%	5.46%
Total Regular Account ex-Overlay	1.09%	6.73%	5.32%	9.03%	5.46%
OPERF Policy Benchmark*	1.29%	9.04%	6.23%	10.07%	5.94%

*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 December 31, 2016*



	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years
10th Percentile	9.26	5.95	9.99	9.36	6.35
25th Percentile	8.49	5.51	9.55	8.76	5.63
Median	7.94	5.31	8.90	8.45	5.35
75th Percentile	7.54	4.81	8.32	8.00	5.18
90th Percentile	6.70	4.50	8.10	7.52	5.00
Total Regular Account ●	7.14	5.66	9.38	8.86	5.73
Policy Target ▲	9.04	6.23	10.07	8.87	5.94

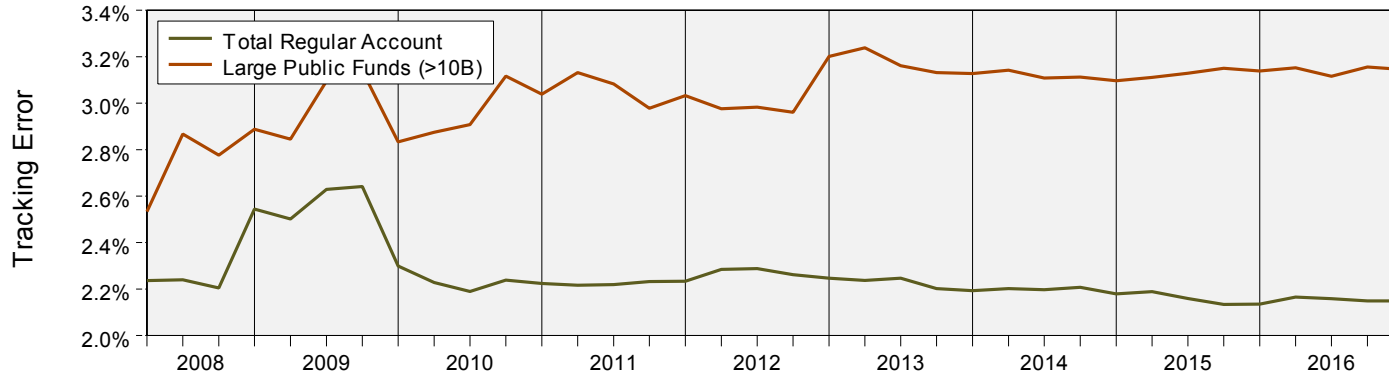
*Versus Callan's Very Large Public Funds (> \$10 billion) Peer Group

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

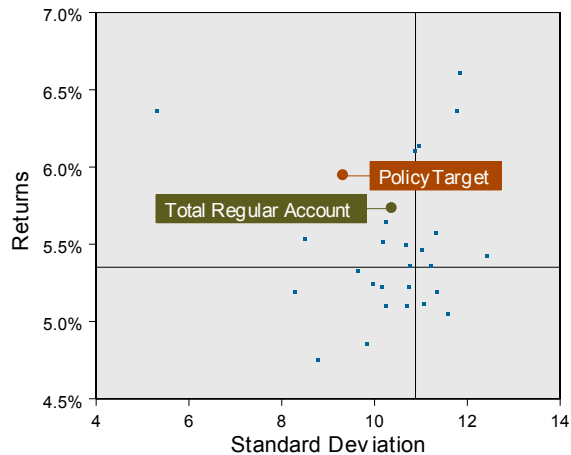
OPERF Total Regular Account

Risk Analysis vs. Very Large Public Funds (>10 billion)
 Periods ended December 31, 2016

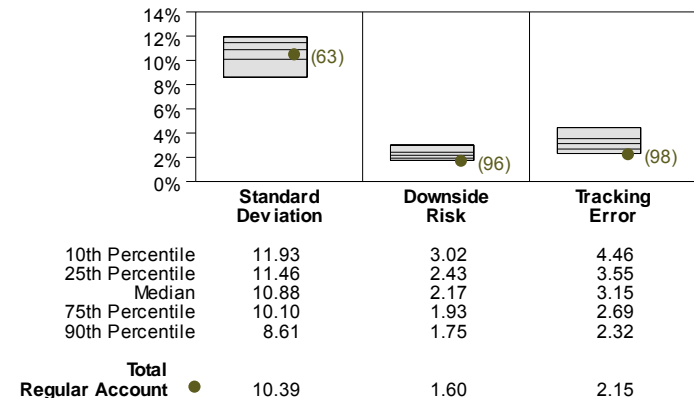
Rolling 40 Quarter Tracking Error vs Policy Target



Risk Analysis vs Very Large Public Funds (>10B) (Gross)
 Ten Years Ended December 31, 2016



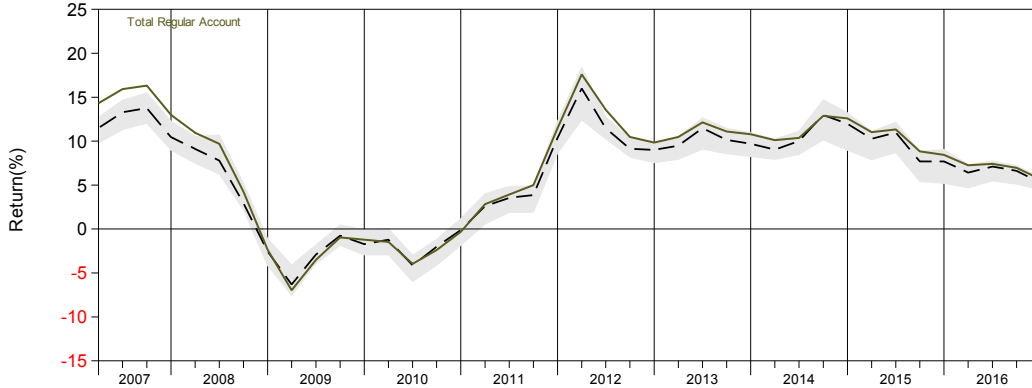
Risk Statistics Rankings vs Policy Target
 Rankings Against Very Large Public Funds (>10B) (Gross)
 Ten Years Ended December 31, 2016



OPERF Total Regular Account

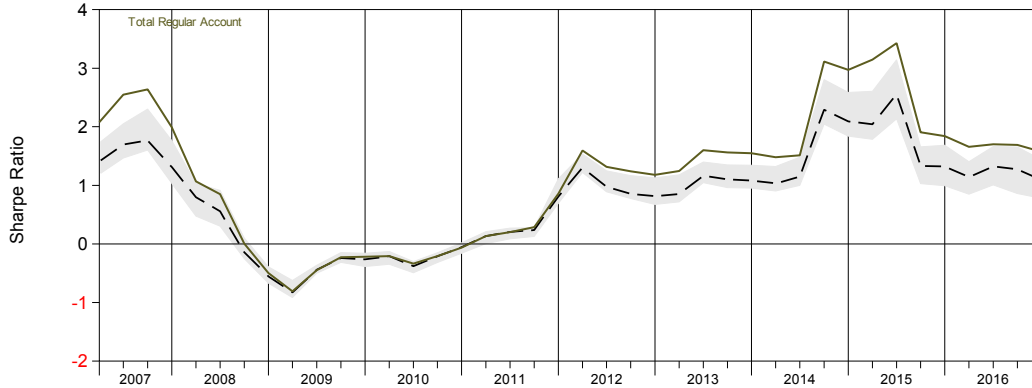
Historical Consistency Analysis vs. Very Large Public Funds (>10 billion)

Rolling Three Year Return(%) Relative to Policy Target
Ten Years Ended December 31, 2016



Rolling Three Year Period Analysis	Median	Portfolio
Average Annual Return(%)	6.51%	7.34%
% Positive Periods	78%	78%
Average Ranking	50	28

Rolling Three Year Sharpe Ratio Relative to Policy Target
Ten Years Ended December 31, 2016



Rolling Three Year Period Analysis	Median	Portfolio
Average Annual Sharpe Ratio	0.81%	1.17%
% Positive Periods	75%	78%
Average Ranking	50	17

OPERF Public Equity

Asset Distribution as of December 31, 2016

	Market Values	% of Total Fund
Total Public Equity	\$ 26,342,737,999	37.98%
Domestic Equity	\$ 13,265,737,110	19.13%
Large Cap Growth	\$ 577,689,154	0.83%
Large Cap Value	\$ 1,696,290,203	2.45%
Small Cap Growth	\$ 136,968,871	0.20%
Small Cap Value	\$ 956,935,600	1.38%
U.S. Core	\$ 9,866,986,974	14.23%
Other	\$ 30,866,308	0.04%
International Equity	\$ 11,406,139,601	16.45%
International Core	\$ 5,230,919,536	7.54%
International Value	\$ 1,790,047,271	2.58%
International Growth	\$ 1,312,973,200	1.89%
International Small Cap	\$ 1,388,510,896	2.00%
Emerging Markets	\$ 1,683,688,698	2.43%
Global Equity	\$ 1,670,861,288	2.41%

OPERF Public Equity

Style Exposure

**Style Exposure Matrix
Holdings as of December 31, 2016**

Large	23.7% (304)	20.2% (268)	17.5% (296)	61.3% (868)
	26.0% (305)	23.1% (274)	21.1% (280)	70.1% (859)
Mid	7.1% (439)	8.9% (538)	7.1% (545)	23.1% (1522)
	5.5% (501)	6.8% (599)	6.8% (620)	19.1% (1720)
Small	4.2% (955)	4.3% (900)	2.5% (612)	11.0% (2467)
	3.0% (1107)	3.3% (1239)	2.8% (1093)	9.1% (3439)
Micro	1.6% (2287)	2.0% (1713)	1.0% (854)	4.6% (4854)
	0.6% (894)	0.6% (873)	0.5% (812)	1.7% (2579)
Total	36.6% (3985)	35.4% (3419)	28.0% (2307)	100.0% (9711)
	35.0% (2807)	33.8% (2985)	31.2% (2805)	100.0% (8597)
	Value	Core	Growth	Total

**Style Exposure Matrix
Holdings as of December 31, 2016**

Europe/ Mid East	6.3% (525)	5.0% (432)	7.4% (386)	18.7% (1343)
	7.3% (478)	4.9% (471)	8.2% (506)	20.3% (1455)
N. America	22.3% (897)	23.8% (1115)	13.1% (621)	59.3% (2633)
	19.4% (788)	22.1% (1133)	15.3% (872)	56.8% (2793)
Pacific	3.6% (934)	3.0% (573)	4.0% (371)	10.5% (1878)
	4.4% (593)	3.8% (553)	4.0% (547)	12.2% (1693)
Emerging/ FM	4.4% (1629)	3.6% (1299)	3.6% (929)	11.5% (3857)
	3.9% (948)	3.1% (828)	3.7% (880)	10.7% (2656)
Total	36.6% (3985)	35.4% (3419)	28.0% (2307)	100.0% (9711)
	35.0% (2807)	33.8% (2985)	31.2% (2805)	100.0% (8597)
	Value	Core	Growth	Total

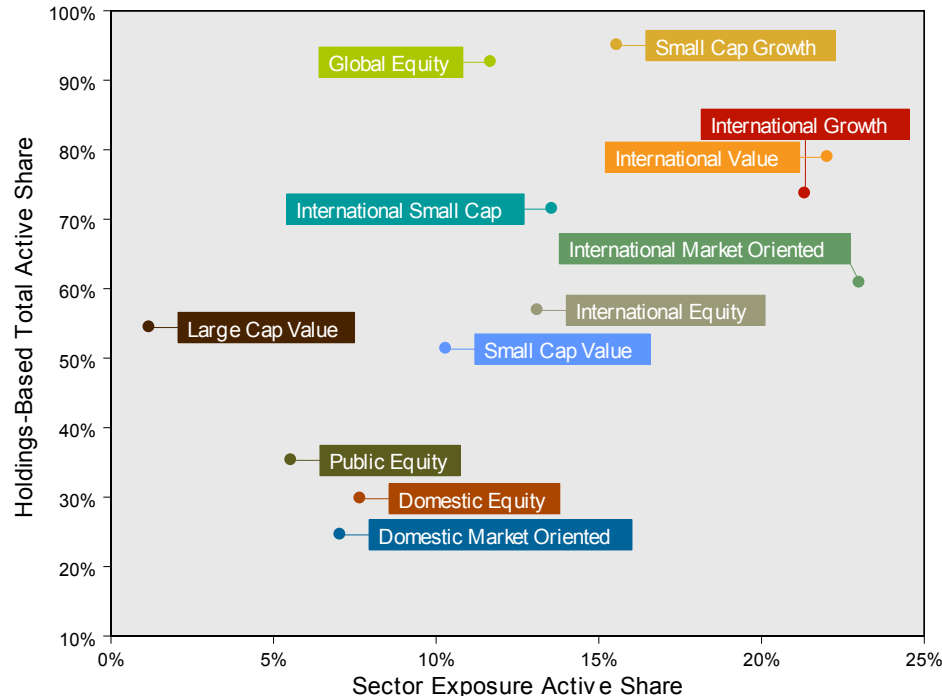
- Public Equity
- MSCI ACWI IMI

Percentages may not sum to 100% due to rounding

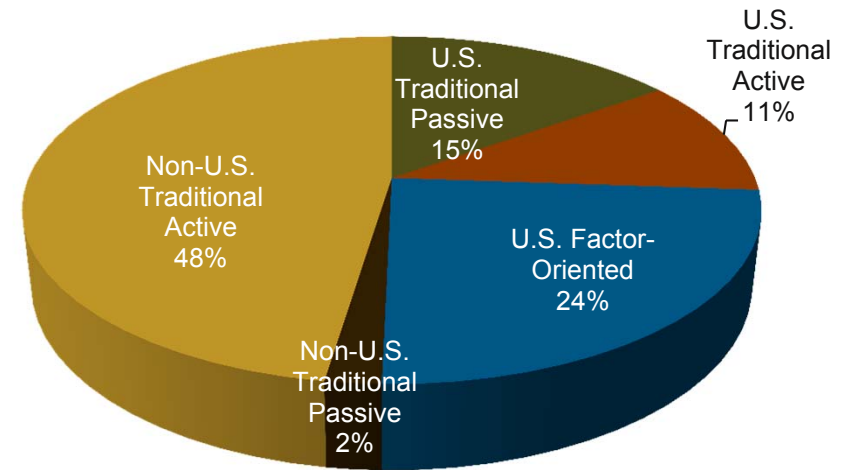
OPERF Public Equity

Public Market Allocation as of December 31, 2016

Active Share Analysis
 Ended December 31, 2016



Active/Passive Split

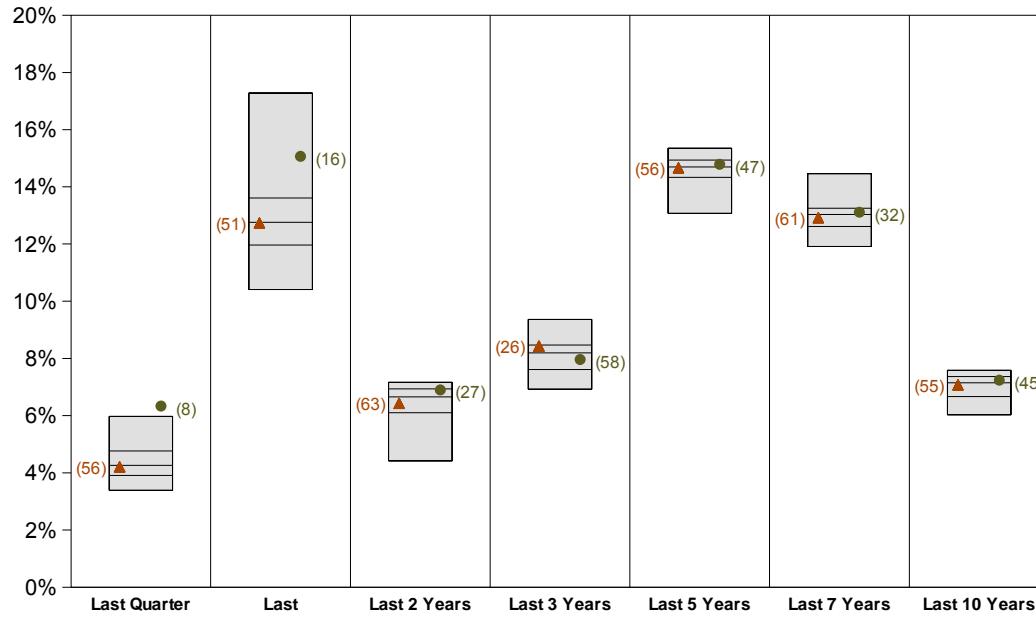


	Weight %	Index	Total Act Share	Non-Idx Act Share	Sector Act Share	Number Securities
Public Equity	100.00%	MSCI ACWI IMI	35.28%	2.87%	5.55%	10269
Domestic Equity	50.30%	Russell 3000	29.77%	3.35%	7.68%	2424
International Equity	43.35%	MSCI ACWI ex US IMI	46.40%	4.84%	9.38%	7848
Global Equity	3.30%	MSCI ACWI	92.60%	4.83%	11.69%	67

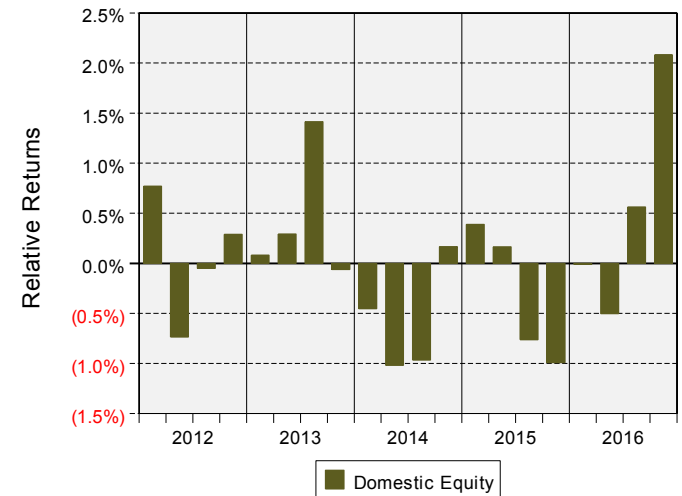
OPERF U.S. Equity

Performance Analysis as of December 31, 2016

Performance vs Lg Public >10 B DE (Gross)



Relative Return vs Russell 3000 Index

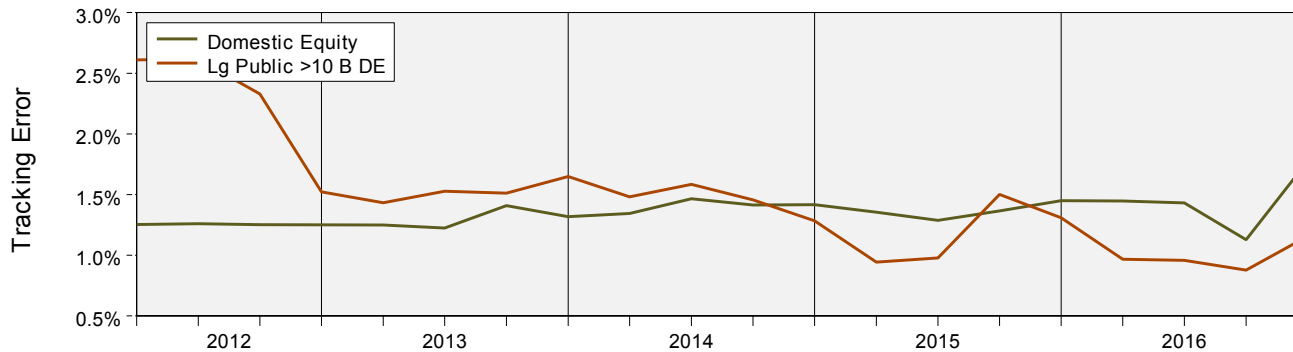


10th Percentile	5.97	17.28	7.17	9.36	15.35	14.46	7.59
25th Percentile	4.76	13.61	6.93	8.46	14.94	13.25	7.37
Median	4.26	12.76	6.66	8.19	14.70	13.04	7.15
75th Percentile	3.91	11.97	6.10	7.61	14.33	12.62	6.67
90th Percentile	3.39	10.41	4.42	6.93	13.07	11.92	6.03
Domestic Equity ●	6.29	15.02	6.85	7.91	14.74	13.07	7.20
Russell 3000 Index ▲	4.21	12.74	6.43	8.43	14.67	12.92	7.07

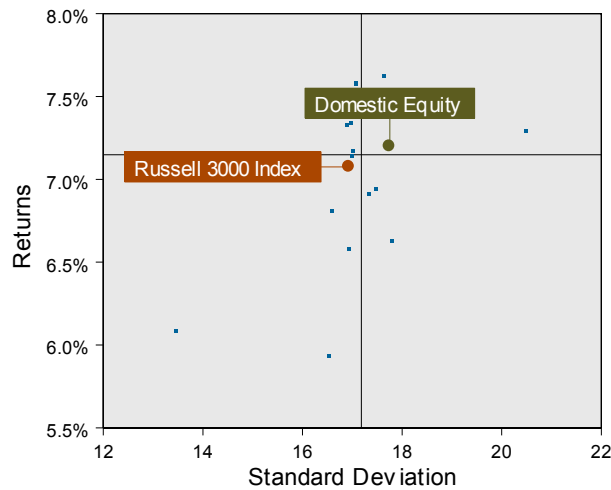
OPERF U.S. Equity

Risk Analysis as of December 31, 2016

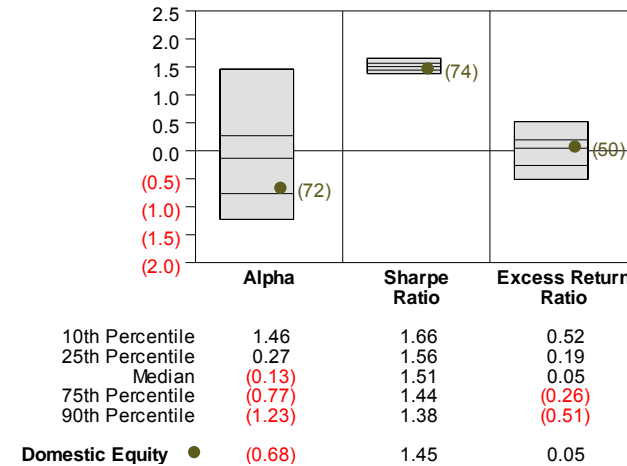
Rolling 12 Quarter Tracking Error vs Russell 3000 Index



Risk Analysis vs Lg Public Funds > \$10B Domestic Equity (Gross)
Five Years Ended December 31, 2016



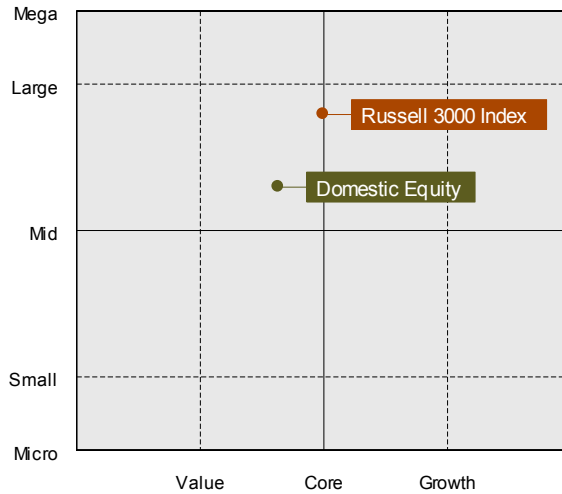
Risk Adjusted Return Measures vs Russell 3000 Index
Rankings Against Lg Public Funds > \$10B Domestic Equity (Gross)
Five Years Ended December 31, 2016



OPERF U.S. Equity

Characteristics as of December 31, 2016

Style Map vs Large Public Funds (>10B)
Holdings as of December 31, 2016

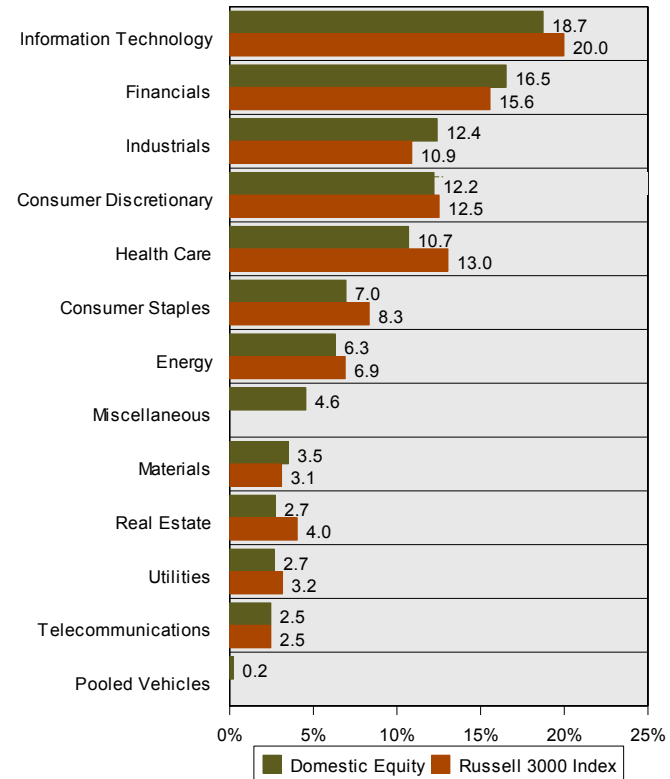


Style Exposure Matrix
Holdings as of December 31, 2016

	Value	Core	Growth	Total
Large	27.3% (104)	21.0% (102)	12.9% (94)	61.1% (300)
	27.5% (102)	26.9% (101)	19.5% (91)	73.9% (294)
Mid	9.2% (185)	8.1% (223)	5.6% (185)	22.9% (593)
	5.5% (184)	6.4% (223)	5.5% (184)	17.4% (591)
Small	4.4% (320)	4.8% (352)	2.2% (186)	11.4% (858)
	2.4% (356)	2.9% (460)	2.2% (370)	7.6% (1186)
Micro	1.7% (260)	2.0% (275)	0.9% (115)	4.6% (650)
	0.3% (254)	0.4% (385)	0.3% (250)	1.0% (889)
Total	42.6% (869)	35.9% (952)	21.5% (580)	100.0% (2401)
	35.8% (896)	36.7% (1169)	27.5% (895)	100.0% (2960)

- OPERF US Equity
- Russell 3000

Sector Allocation
December 31, 2016

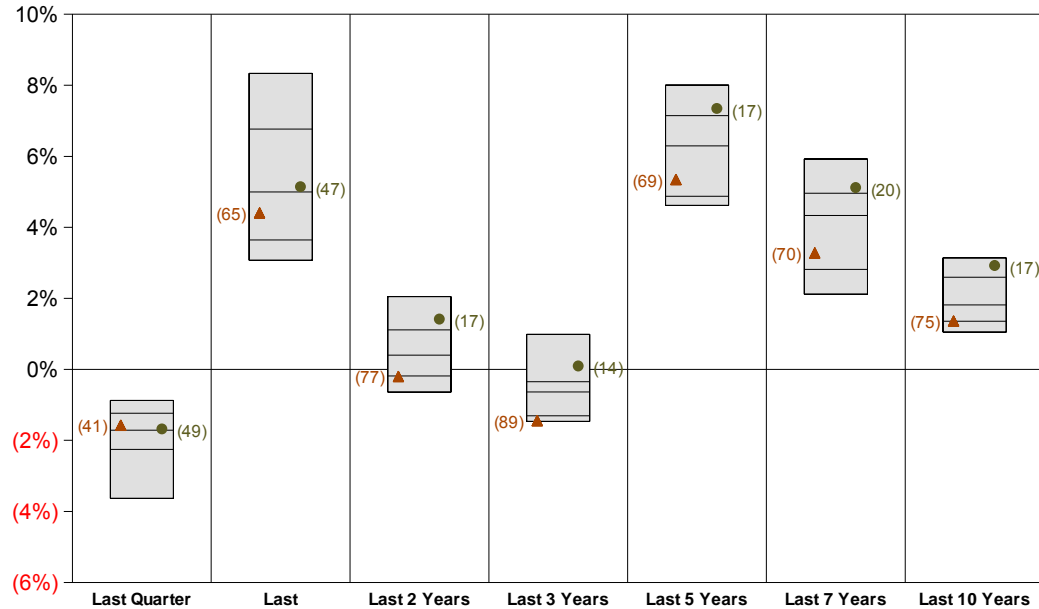


	Wtd. Median Mkt Cap	Price/Earn.	Price/Book	Forecasted Earn. Growth	Div. yield	MSCI Combined Z-Score
Domestic Equity	26.92	16.28	2.29	10.65	1.84	-0.23
Russell 3000 Index	55.75	17.92	2.66	12.27	1.98	-0.01

OPERF Non-US Equity

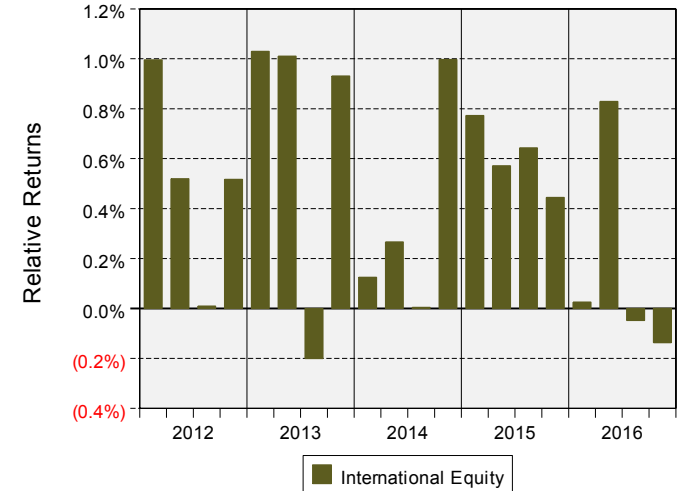
Performance Analysis as of December 31, 2016

Performance vs Lg Public >10 B IE (Gross)



10th Percentile	(0.87)	8.34	2.05	0.98	8.01	5.93	3.14
25th Percentile	(1.24)	6.77	1.11	(0.35)	7.14	4.96	2.60
Median	(1.71)	5.00	0.40	(0.64)	6.29	4.34	1.81
75th Percentile	(2.25)	3.65	(0.18)	(1.31)	4.88	2.82	1.36
90th Percentile	(3.63)	3.07	(0.64)	(1.47)	4.62	2.12	1.05
International Equity	● (1.71)	5.11	1.38	0.06	7.31	5.09	2.89
MSCI ACWI ex-US IMI Index*	▲ (1.57)	4.41	(0.20)	(1.44)	5.35	3.28	1.36

Relative Returns vs MSCI ACWI ex-US IMI Index

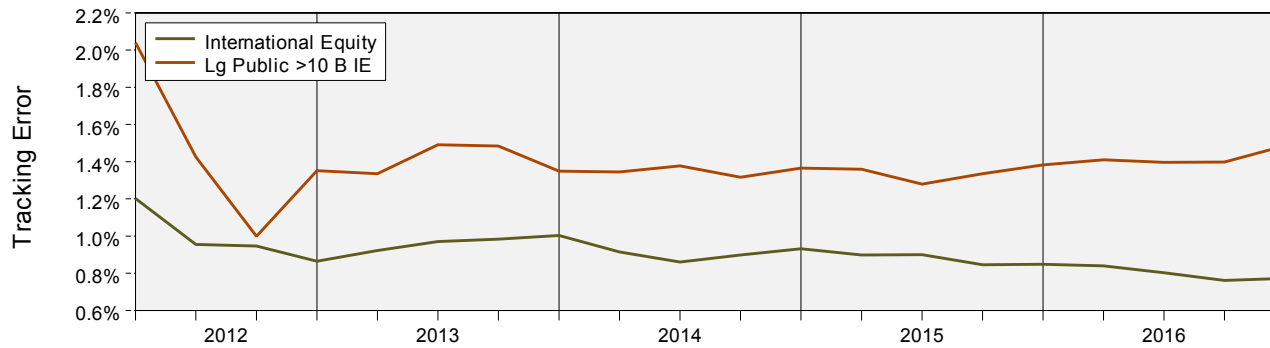


*The benchmark for the International Equity portfolio was the MSCI ACWI ex US Gross Index through May 31, 2008, and the MSCI ACWI ex US IMI Net Index thereafter. Index returns above are linked.

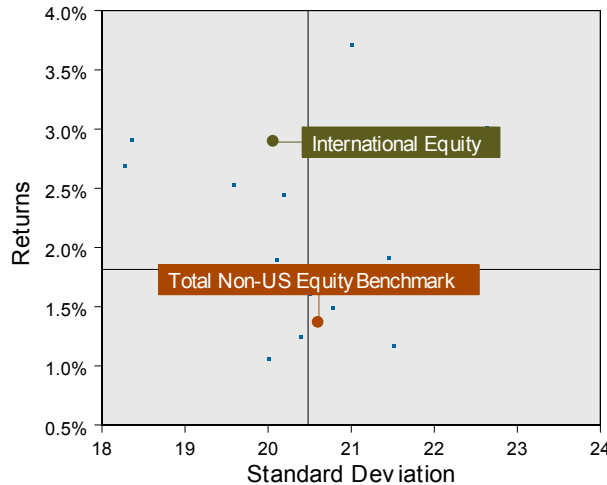
OPERF Non-US Equity

Risk Analysis as of December 31, 2016

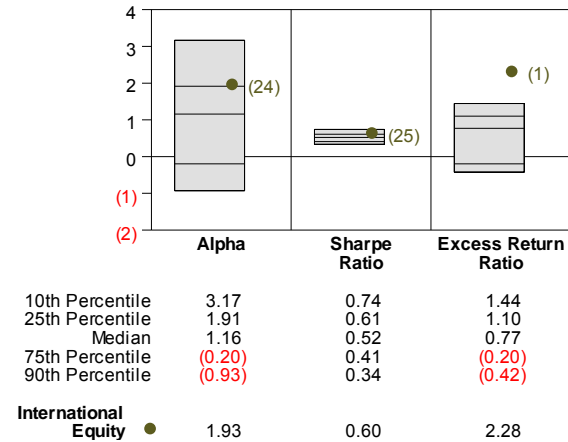
Rolling 12 Quarter Tracking Error vs MSCI ACWI ex-US IMI Index*



Risk Analysis vs Lg Public Funds > \$10B Domestic Equity (Gross) Five Years Ended December 31, 2016



Risk Adjusted Return Measures vs MSCI ACWI ex-US IMI Index* Rankings Against Lg Public Funds > \$10B Domestic Equity (Gross) Five Years Ended December 31, 2016

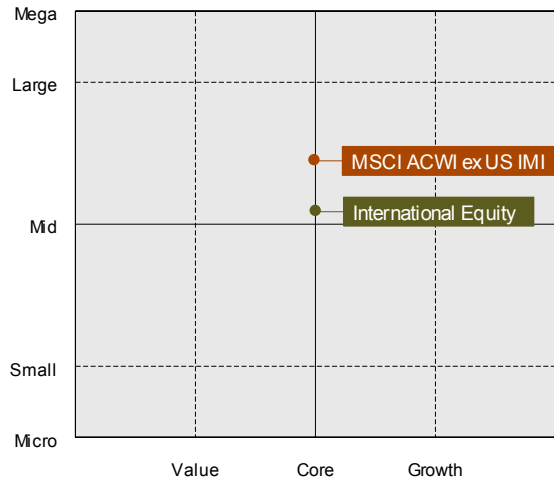


*The benchmark for the International Equity portfolio was the MSCI ACWI ex US Gross Index through May 31, 2008, and the MSCI ACWI ex US IMI Net Index thereafter. Index returns above are linked.

OPERF Non-US Equity

Characteristics as of December 31, 2016

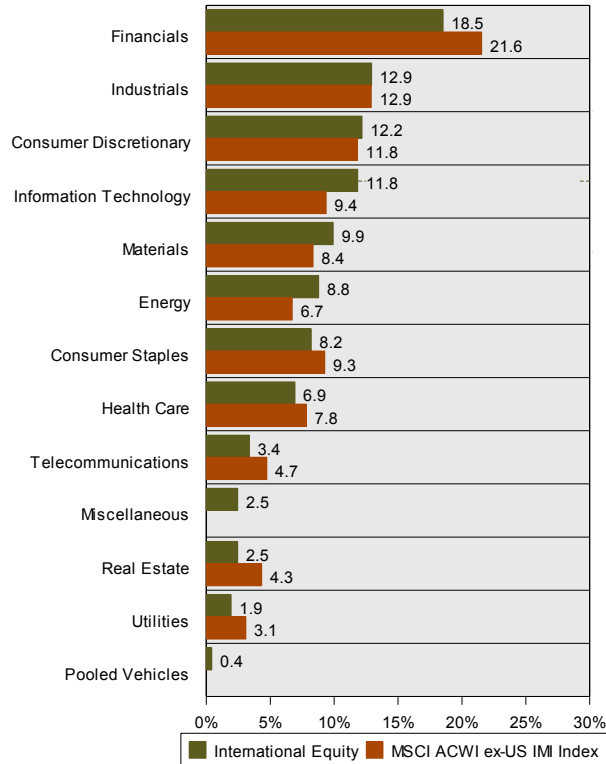
Style Map vs Large Public Funds (>10B)
Holdings as of December 31, 2016



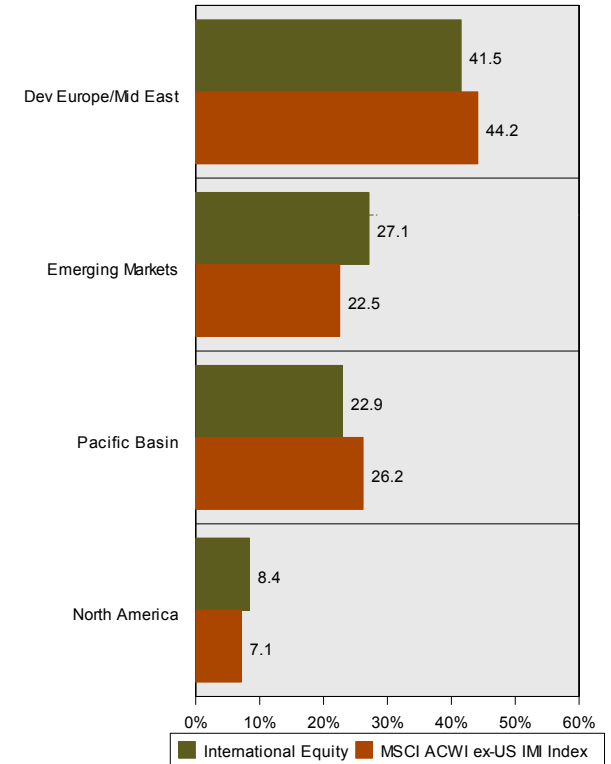
Style Exposure Matrix
Holdings as of December 31, 2016

	Value	Core	Growth	Total
Large	18.3% (164)	14.5% (143)	19.6% (175)	52.4% (482)
	23.2% (167)	16.4% (143)	20.7% (160)	60.4% (470)
Mid	7.1% (233)	10.3% (294)	9.9% (340)	27.3% (867)
	6.6% (292)	8.3% (355)	8.9% (402)	23.8% (1049)
Small	5.8% (643)	5.4% (543)	4.2% (431)	15.4% (1617)
	4.3% (756)	4.4% (786)	3.9% (732)	12.6% (2274)
Micro	2.0% (2058)	1.7% (1532)	1.2% (754)	5.0% (4344)
	1.2% (838)	1.1% (808)	0.9% (684)	3.2% (2330)
Total	33.2% (3098)	31.9% (2512)	34.9% (1700)	100.0% (7310)
	35.3% (2053)	30.2% (2092)	34.5% (1978)	100.0% (6123)

Sector Allocation
December 31, 2016



Regional Allocation
December 31, 2016



	Wtd. Median Mkt Cap	Price/Earn.	Price/Book	Forecasted Earn. Growth	Div yield	MSCI Combined Z-Score
International Equity	13.23	13.71	1.51	11.99	2.54	-0.02
MSCI ACWI ex-US IMI	20.89	14.26	1.6	10.55	2.87	-0.03

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

OPERF Total Fixed Income

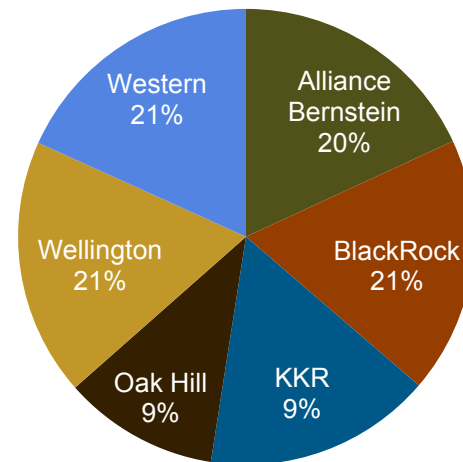
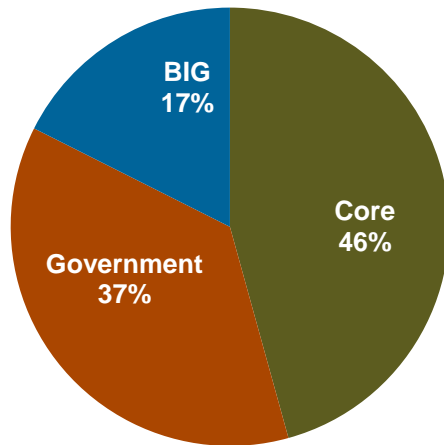
Allocations as of December 31, 2016

Allocation by Strategy

Managers	Assets (\$M)	% Allocation	% Target
Core	\$ 6,254,649	45.7%	46.0%
Government	\$ 5,025,445	36.7%	37.0%
BIG	\$ 2,406,736	17.6%	17.0%
Total	\$ 13,686,831	100.0%	100.0%

Allocation by Manager

Managers	Core	Government	BIG	Assets (\$M)	% Allocation
AllianceBernstein	\$ 1,563,090,534	\$ 1,241,472,713	-	\$ 2,804,563,247	20.49%
BlackRock	\$ 1,558,367,300	\$ 1,251,255,383	-	\$ 2,809,622,683	20.53%
Wellington	\$ 1,565,142,067	\$ 1,284,523,276	-	\$ 2,849,665,343	20.82%
Western Asset Mgmt	\$ 1,568,049,565	\$ 1,248,193,625	-	\$ 2,816,243,190	20.58%
KKR Asset Mgmt	-	-	\$ 1,208,307,821	\$ 1,208,307,821	8.83%
Oak Hill	-	-	\$ 1,198,428,473	\$ 1,198,428,473	8.76%
Total	\$ 6,254,649,466	\$ 5,025,444,997	\$ 2,406,736,294	\$ 13,686,830,757	100.00%

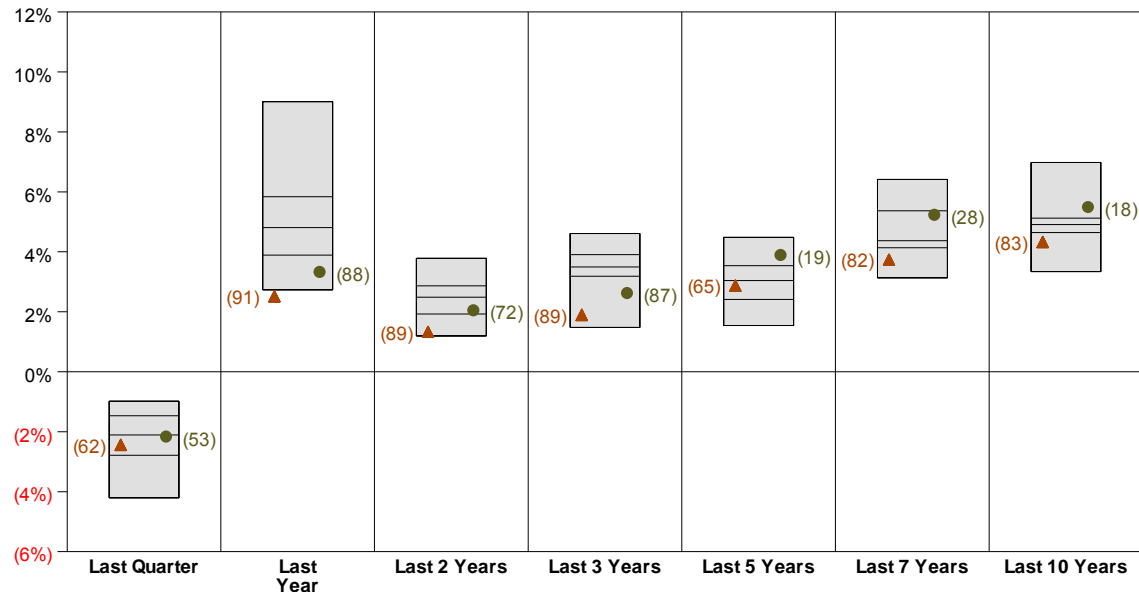


Percentages may not sum to 100% due to rounding

OPERF Total Fixed Income

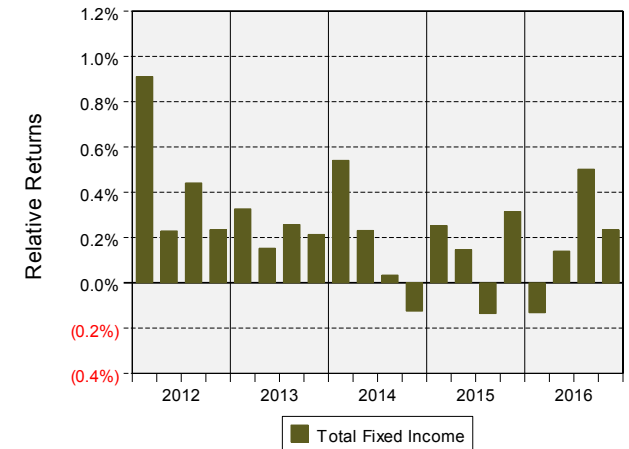
Performance Analysis as of December 31, 2016

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



10th Percentile	(0.98)	9.01	3.78	4.61	4.48	6.42	6.98
25th Percentile	(1.47)	5.84	2.86	3.91	3.54	5.37	5.13
Median	(2.11)	4.81	2.49	3.50	3.04	4.37	4.91
75th Percentile	(2.79)	3.89	1.93	3.19	2.41	4.14	4.64
90th Percentile	(4.21)	2.73	1.20	1.48	1.54	3.14	3.34
Total Fixed Income	● (2.20)	3.29	2.01	2.58	3.85	5.19	5.45
OPERF Custom FI Benchmark*	▲ (2.43)	2.52	1.33	1.90	2.88	3.74	4.33

Relative Returns vs OPERF Custom FI Benchmark*

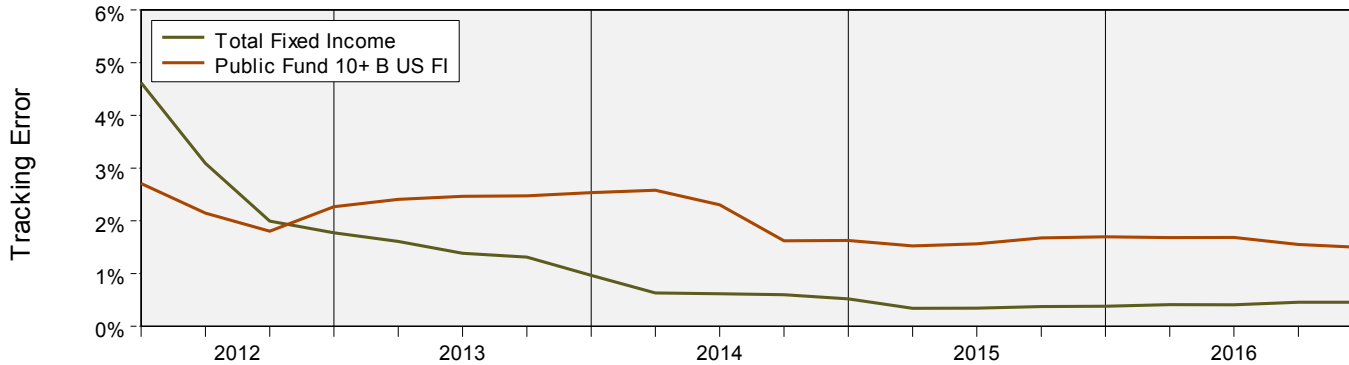


*Prior to February 28, 2011, index is Oregon Custom FI 90/10 Benchmark (90% BC US Universal Index and 10% SSBI Non-US World Gov't Bond Hedged Index). From March 1, 2011 to December 31, 2013, index is Oregon Custom FI Benchmark (60% BC US Universal Index, 20% S&P/LSTA Leveraged Loan Index, 10% JPM EMBI 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.

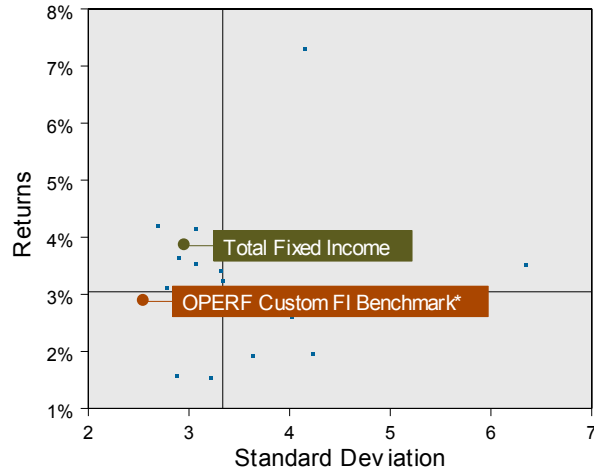
OPERF Total Fixed Income

Risk Analysis as of December 31, 2016

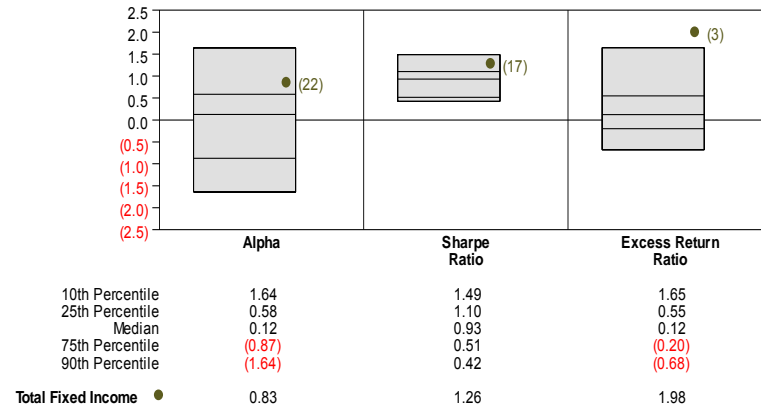
Rolling 12 Quarter Tracking Error vs OPERF Custom FI Benchmark*



Risk Analysis vs Public Funds \$10B+ US FI (Gross)
Five Years Ended December 31, 2016



Risk Statistics Rankings vs Policy Target
Rankings Against Public Funds \$10B+ US FI (Gross)
Five Years Ended December 31, 2016

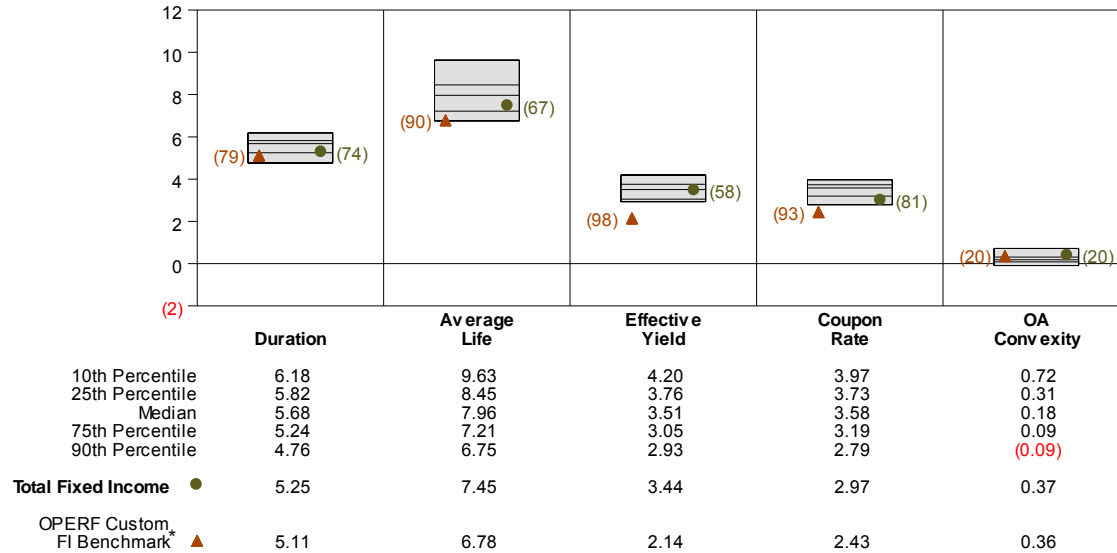


*Oregon's custom benchmark was changed on March 1, 2016 and now represents 46% Barclays Aggregate Bond, 37% Barclays Treasury, 4% BofAML High Yield Master II, and 13% S&P/LSTA.

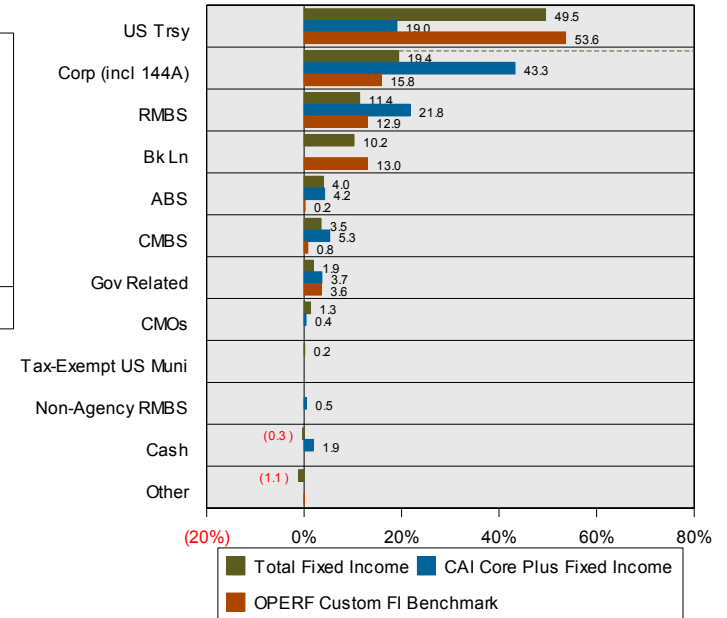
OPERF Total Fixed Income

Characteristics as of December 31, 2016

Fixed Income Portfolio Characteristics Rankings Against CAI Core Plus Fixed Income as of December 31, 2016



Sector Allocation December 31, 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.

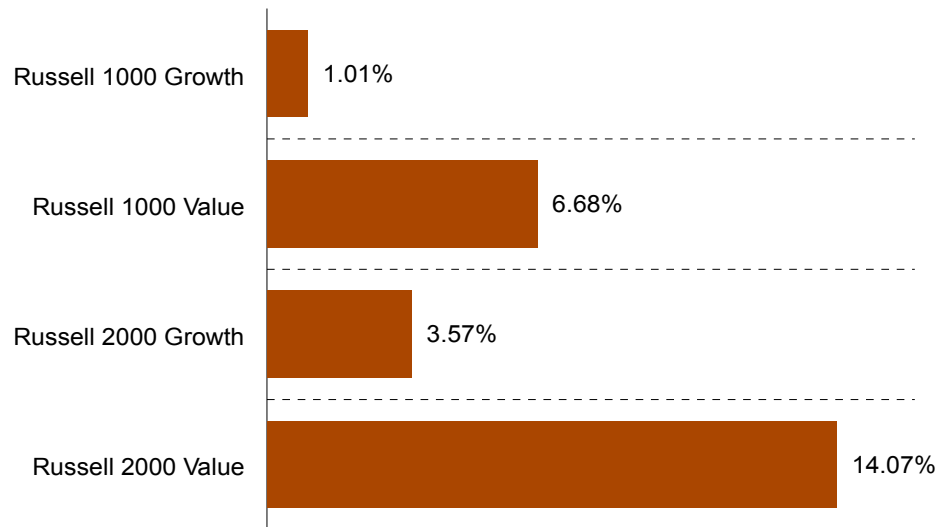


Appendix

US Equity

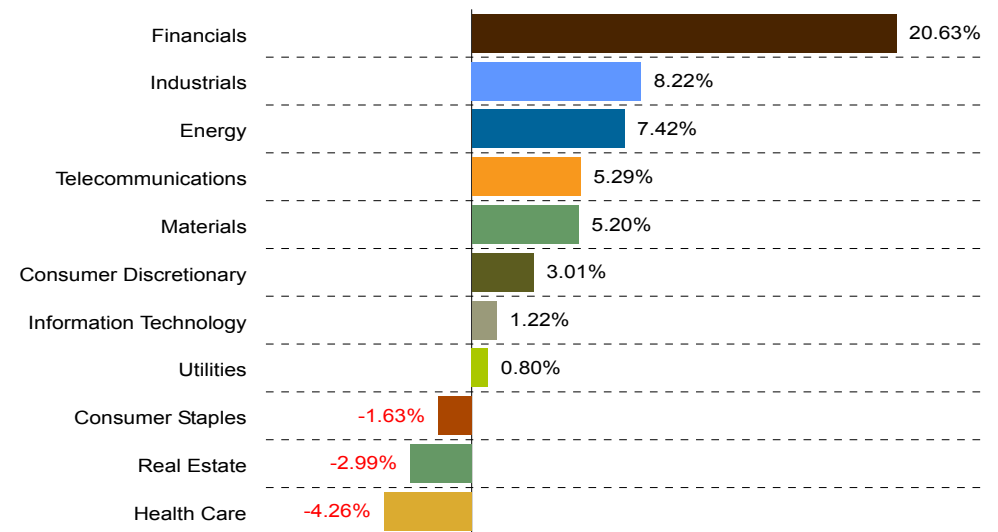
Fourth Quarter 2016

Quarterly Performance By Capitalization and Style



Source: Russell Investment Group

Quarterly Returns (Russell 3000) By Sector



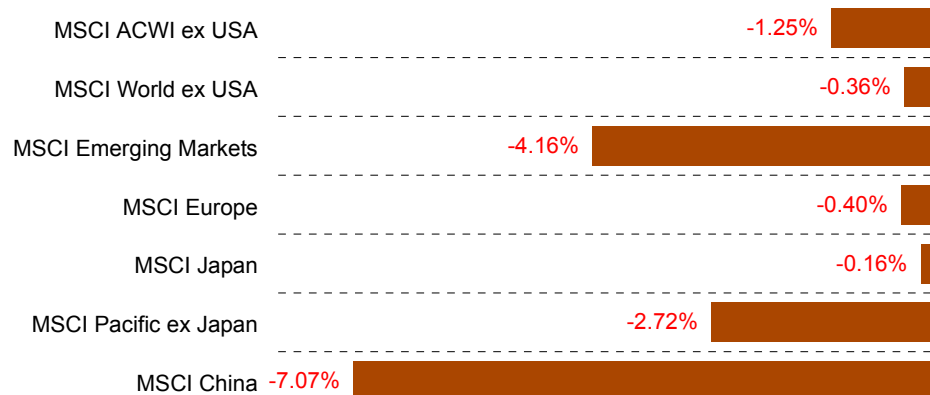
Source: Russell Investment Group

- In the fourth quarter, U.S. stocks were driven to record highs, cheered by good economic data, a rebound in corporate earnings, and speculation that Trump's presidency will bring lower taxes, lighter regulation and increased spending.
- A post-election rally boosted the Russell 3000 Index to +4.2% for the quarter and +12.7% for the year. Even more impressive were small caps, which outpaced other capitalizations for the quarter and in 2016 (Russell 2000 4Q16: +8.8%; 2016: +21.3%). Value regained its lead over growth across market capitalizations. The dispersion in returns was broad with the largest difference seen in small caps as the Russell 2000 Value outperformed its Growth counterpart by 10.5% in the quarter and by double that amount, 20.4%, over the year.
- Sector performance reflected the style shift. Top performers, Financials (+20.6%) and Energy (+7.4%), represent a significant portion of the value indices. Meanwhile, Health Care (-4.3%) was the worst performing sector, followed by Real Estate (-3.0%) which suffered on the back of rising interest rates

Non-US Equity

Fourth Quarter 2016

Regional Quarterly Performance (U.S. Dollar)



- During the final quarter of 2016, foreign developed and emerging markets floundered in U.S. dollar terms despite hearty local returns. The U.S. dollar hit a multi-year high versus the euro and the yen and appreciated roughly 7% compared to a basket of currencies.
- Dollar strength eroded overseas returns for U.S. investors. The MSCI ACWI ex USA was down 1.3% for the quarter (but up 4.9% in local currency). Despite multiple headwinds, the index ended the year on a positive note, up 4.5%.
- Despite the Emerging Markets Index's decline during the quarter, it jumped a robust 11.2% during 2016, supported by strengthening commodity prices, reform efforts and accommodative monetary policies in several countries.

Quarterly Return Attribution for EAFE (U.S. Dollar)

Country	Total	Local	Currency	Weight
Australia	0.69%	6.41%	-5.38%	7.40%
Austria	6.51%	13.48%	-6.14%	0.20%
Belgium	-11.80%	-6.03%	-6.14%	1.18%
Denmark	-8.74%	-2.90%	-6.01%	1.65%
Finland	-4.40%	1.86%	-6.14%	0.96%
France	2.93%	9.67%	-6.14%	10.18%
Germany	1.45%	8.10%	-6.14%	9.30%
Hong Kong	-8.97%	-9.00%	0.04%	3.25%
Ireland	0.14%	6.69%	-6.14%	0.47%
Israel	-11.32%	-9.61%	-2.51%	0.68%
Italy	10.75%	18.01%	-6.14%	2.08%
Japan	-0.16%	14.99%	-13.18%	24.13%
Netherlands	-2.10%	3.72%	-6.14%	3.31%
New Zealand	-10.88%	-7.06%	-4.11%	0.18%
Norway	2.40%	10.29%	-7.15%	0.66%
Portugal	-2.92%	3.44%	-6.14%	0.15%
Singapore	-3.64%	2.02%	-5.62%	1.24%
Spain	2.24%	8.94%	-6.14%	3.14%
Sweden	-0.84%	5.15%	-5.69%	2.84%
Switzerland	-3.86%	0.80%	-4.62%	8.66%
U.K.	-0.90%	4.19%	-4.88%	18.34%

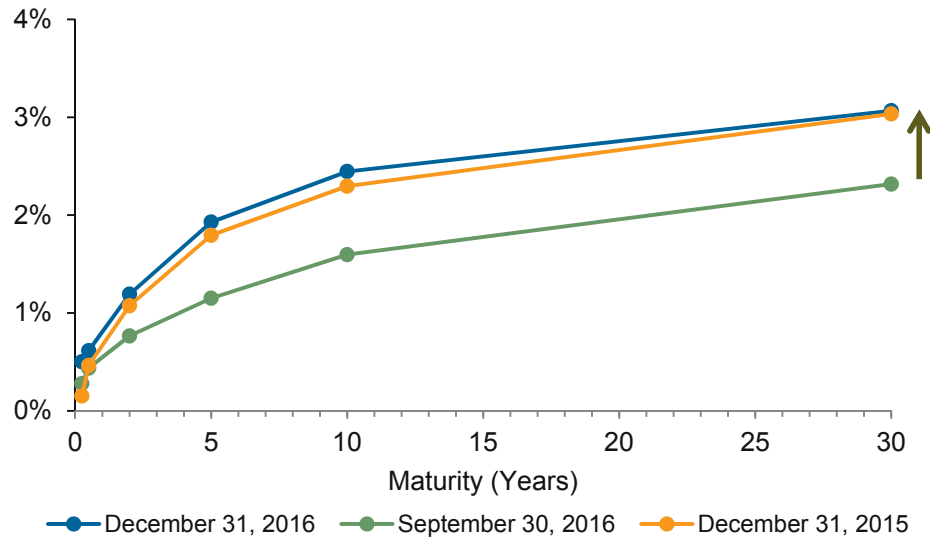
Source: MSCI

Sources: Callan, MSCI

Yield Curve

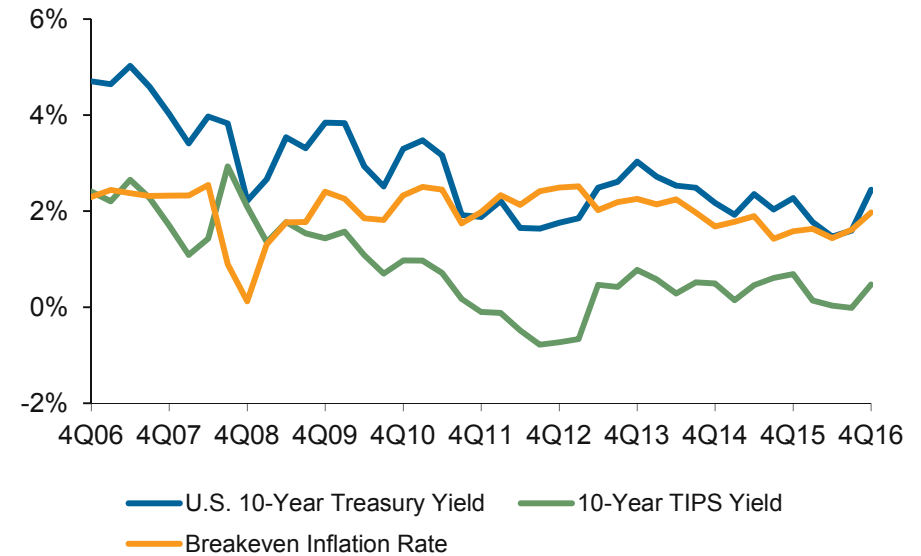
Fourth Quarter 2016

U.S. Treasury Yield Curves



Source: Bloomberg

Historical 10-Year Yields



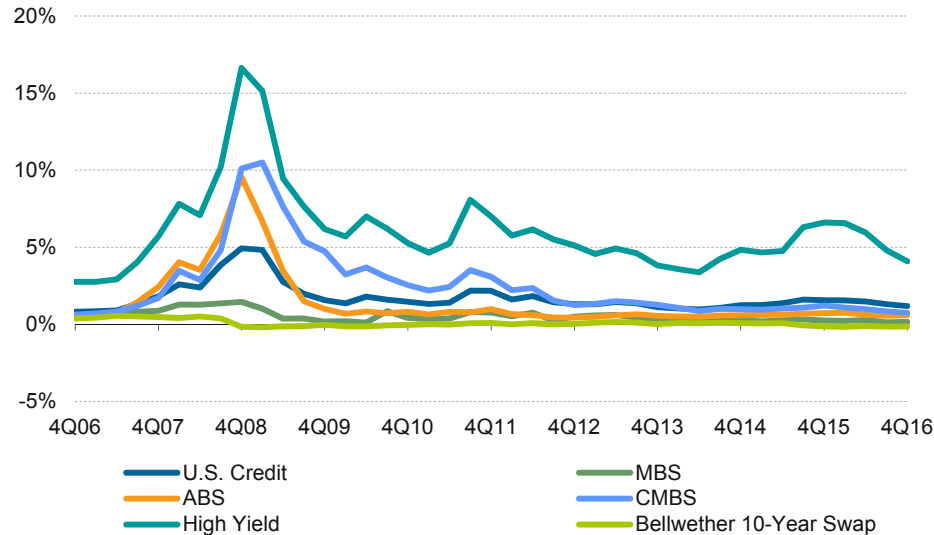
Source: Bloomberg

- Markets entered 2016 expecting four rate hikes, but the Fed increased the Federal Funds rate only once, by 25 bps to a range of 0.50%-0.75% in December. While the increase was expected, Treasuries still sold off and pushed interest rates upward following the announcement.
- The yield curve rose given encouraging economic data and the potential inflationary effect of the new administration's pro-growth agenda.
- Yields rose sharply across the maturity spectrum. The benchmark 10-year Treasury Note showed the biggest change, ending the quarter at 2.45% (an increase of 85 bps and the largest quarterly increase since 1994). Yields on the 5-year and 30-year finished at 1.93% and 3.07%, respectively.

Fixed Income

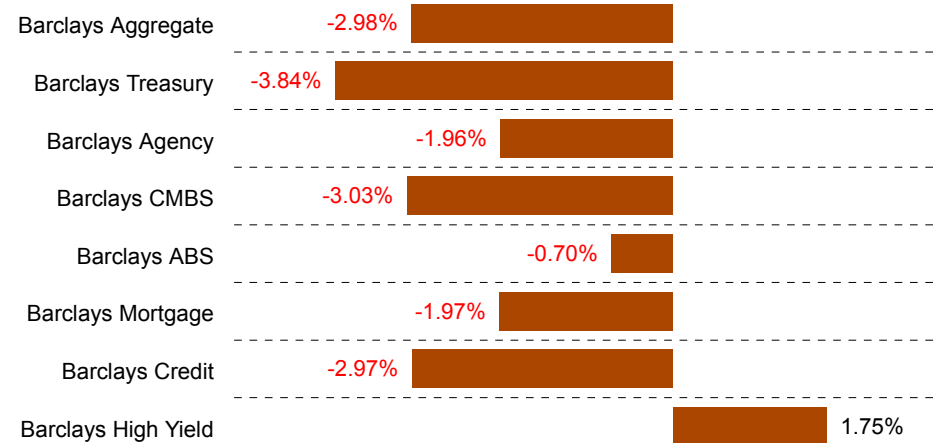
Fourth Quarter 2016

Effective Yield Over Treasuries



Source: Barclays

Absolute Returns for Quarter ended December 31, 2016



Source: Barclays

- The Bloomberg Barclays U.S. Aggregate Index experienced a tumultuous fourth quarter, dropping 3.0%. But the year ended on an upbeat note, with the Aggregate up 2.7%.
- As a result of rising yields, returns across the broad fixed income sector were negative for the quarter.
- Spreads tightened during the quarter. High-yield corporates were the strongest performer with a 1.8% rise. Despite a slow start at the beginning of the year, high yield corporates made a powerful comeback to end the year with equity-like returns, delivering +17.1%.

TAB 10 – Asset Allocations & NAV Updates

Asset Allocations at January 31, 2017

OPERF	Policy	Target ¹	Regular Account					Variable Fund	Total Fund
			\$ Thousands	Pre-Overlay	Overlay	Net Position	Actual	\$ Thousands	\$ Thousands
Public Equity	32.5-42.5%	37.5%	27,081,494	38.5%	187,437	27,268,931	38.7%	613,421	27,882,352
Private Equity	13.5-21.5%	17.5%	13,915,166	19.8%		13,915,166	19.8%		13,915,166
Total Equity	50.0-60.0%	55.0%	40,996,660	58.2%	187,437	41,184,097	58.5%		41,797,518
Opportunity Portfolio	0-3%	0.0%	1,450,877	2.1%		1,450,877	2.1%		1,450,877
Fixed Income	15-25%	20.0%	13,738,862	19.5%	1,362,507	15,101,369	21.5%		15,101,369
Real Estate	9.5-15.5%	12.5%	8,620,065	12.2%	(18,900)	8,601,165	12.2%		8,601,165
Alternative Investments	0-12.5%	12.5%	4,040,928	5.7%		4,040,928	5.7%		4,040,928
Cash²	0-3%	0.0%	1,543,283	2.2%	(1,531,044)	12,239	0.0%	2,408	14,647
TOTAL OPERF		100%	\$ 70,390,675	100.0%	\$ -	\$ 70,390,675	100.0%	\$ 615,828	\$ 71,006,503

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.

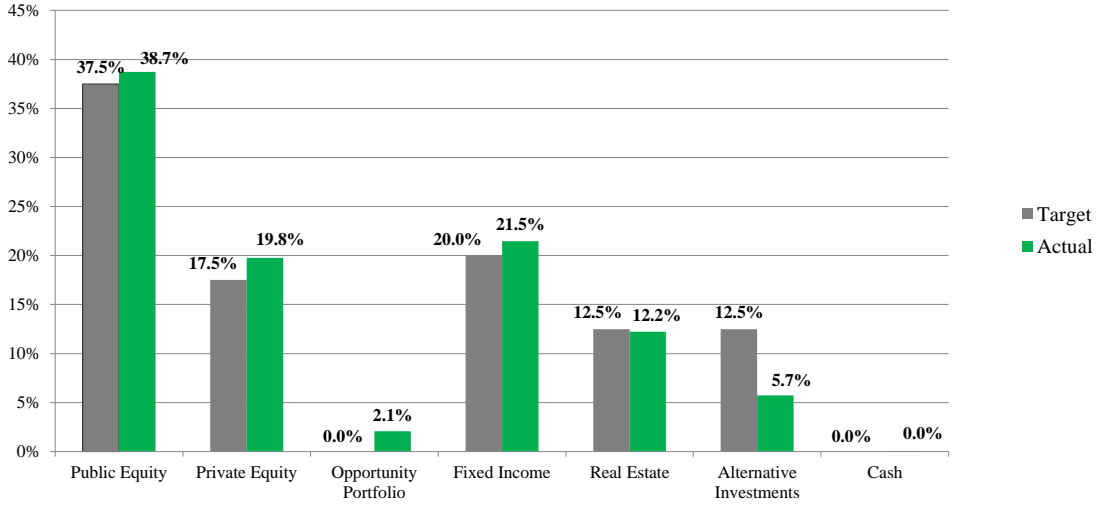
SAIF	Policy	Target	\$ Thousands	Actual
Total Equity	7-13%	10.0%	486,845	10.3%
Fixed Income	80-90%	85.0%	4,189,276	88.7%
Real Estate	0-7%	5.0%	0	0.0%
Cash	0-3%	0%	49,362	1.0%
TOTAL SAIF			\$ 4,725,483	100.0%

CSF	Policy	Target	\$ Thousands	Actual
Domestic Equities	25-35%	30%	453,775	30.5%
International Equities	25-35%	30%	419,023	28.1%
Private Equity	0-12%	10%	176,991	11.9%
Total Equity	65-75%	70%	1,049,790	70.5%
Fixed Income	25-35%	30%	428,795	28.8%
Cash	0-3%	0%	10,262	0.7%
TOTAL CSF			\$ 1,488,847	100.0%

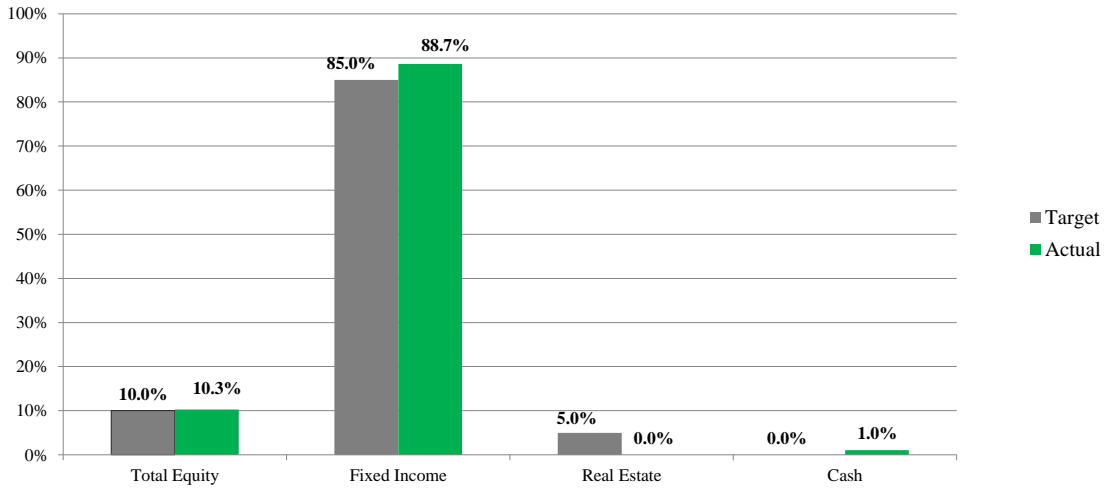
SOUE	Policy	Target ³	\$ Thousands	Actual
Global Equities	65-75%	70%	1,575	71.6%
Growth Assets	65-75%	70%	1,575	71.6%
Fixed Income	25-35%	30%	624	28.4%
Cash	0-3%	0%	2	0.1%
Diversifying Assets	25-35%	30%	626	28.4%
TOTAL SOUE			\$ 2,201	100.0%

³Revised asset allocation adopted by OIC, March 2015.

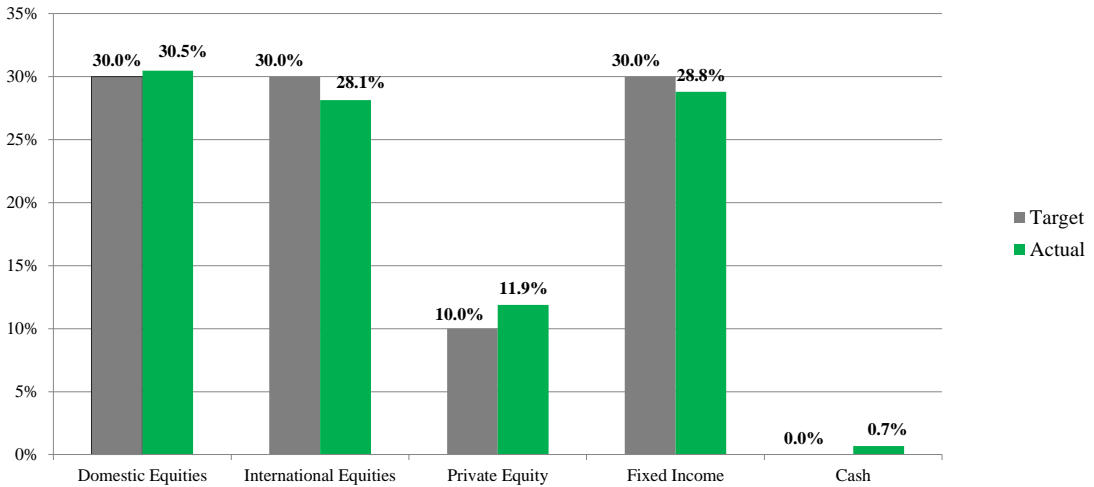
OPERF Asset Allocation



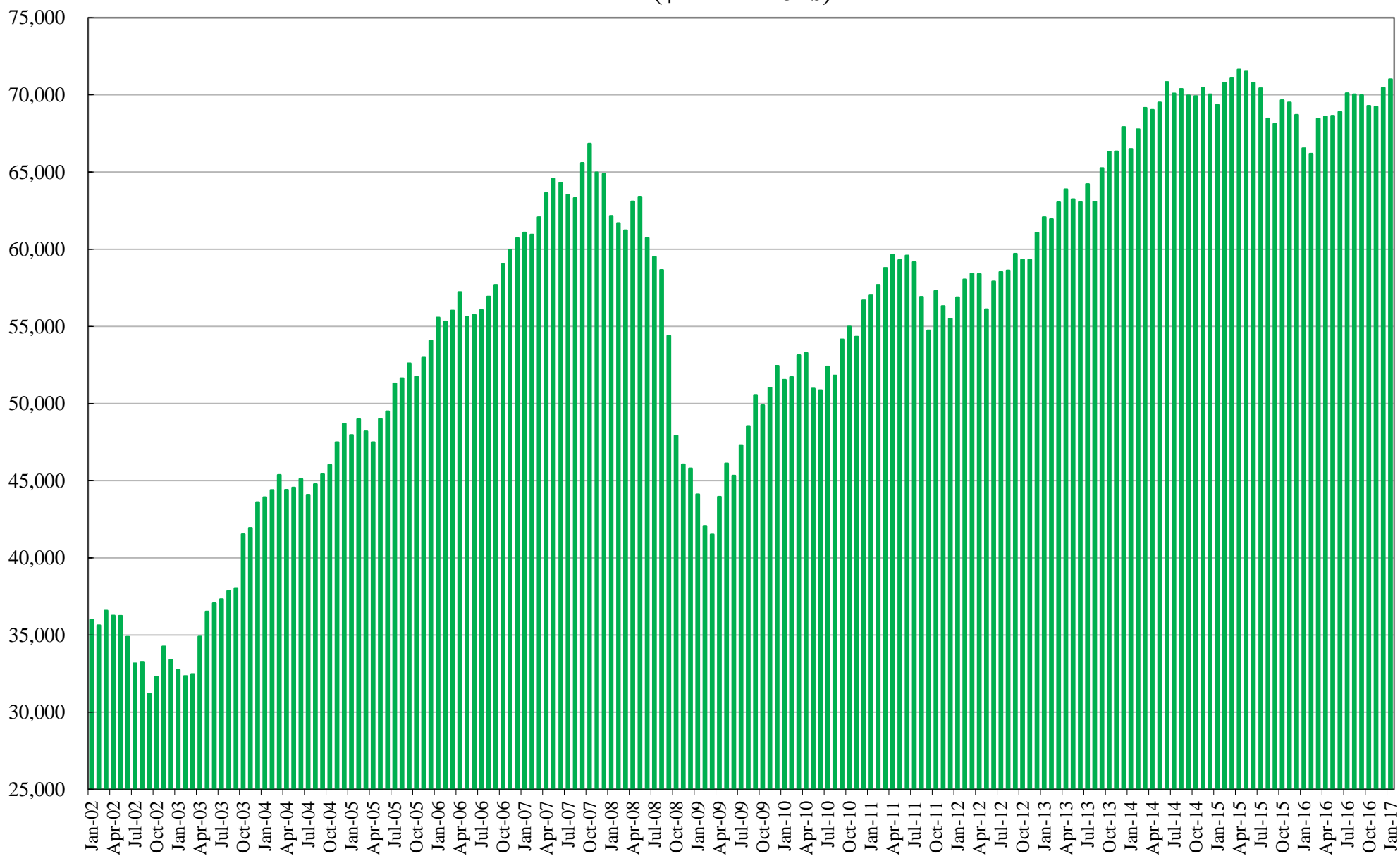
SAIF Asset Allocation



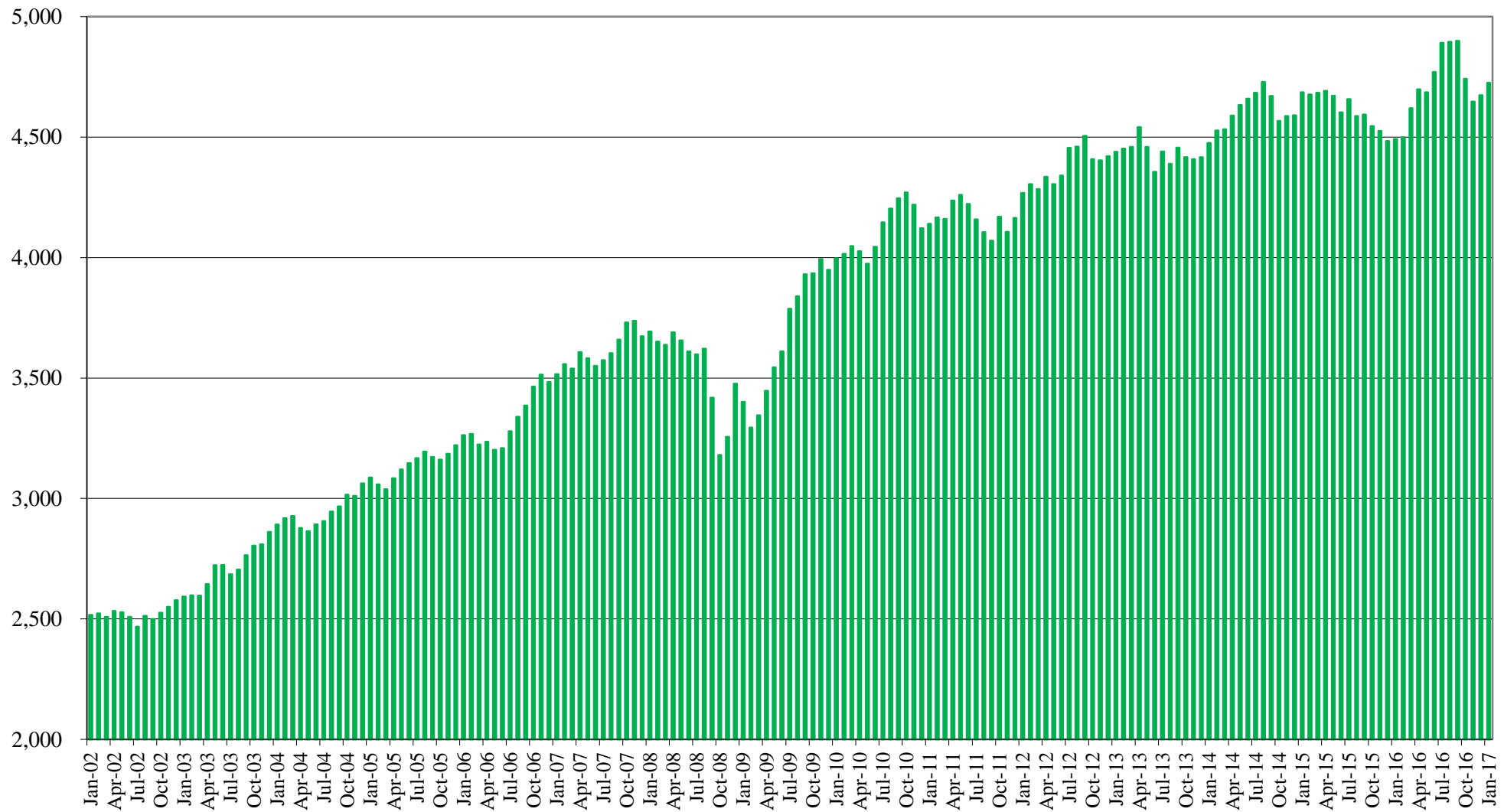
CSF Asset Allocation



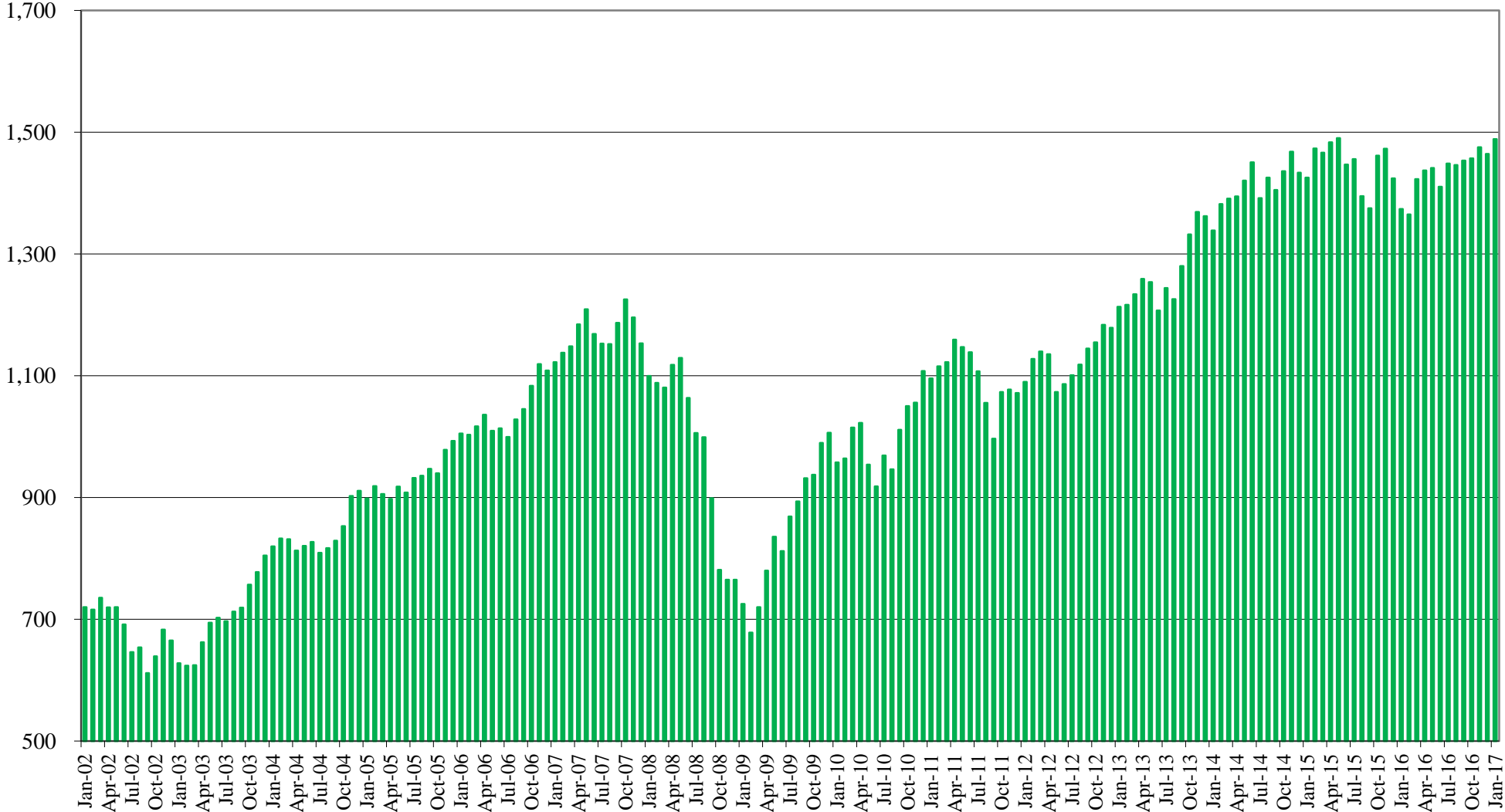
OPERF NAV
15 years ending January 2017
(\$ in Millions)



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



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



TAB 11 – Calendar — Future Agenda Items

2017/18 OIC Forward Calendar and Planned Agenda Topics

- April 26, 2017:** Private Equity Manager Recommendation
Real Estate Reporting & Valuation Consultant Recommendation
OPERF Asset Allocation & Capital Market Assumptions Update
OIC Policy Updates
SAIF Annual Review
OPERF Alternatives Portfolio Review
- 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:** IAP Recommendation
Corporate Governance Update
OIC Policy Updates
Private Markets Workshop
- September 20, 2017:** Q2 2017 OPERF Performance & Risk Report
OITP Review
OIC Strategic Issues Discussion
- November 1, 2017:** Public Equity Program Review
CEM Benchmarking Report
- December 13, 2017:** OIC Officer Election
OPERF Q3 2017 Performance & Risk Report
OSTF Review
Fixed Income Program Review
- February 1, 2018:** Private Equity Program Review
Real Estate Program Review
Placement Agent Report
2019 OIC Calendar Approval
- March 14, 2018:** OPERF Overlay Review
Securities Lending Update
Q4 2017 OPERF Performance & Risk Report