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# **Oregon Investment Council**

February 1, 2017  
9:00 AM

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

**Rukaiyah Adams**  
Vice Chair

**John Skjervem**  
Chief Investment Officer

**Tobias Read**  
State Treasurer





# OREGON INVESTMENT COUNCIL

## Agenda

**February 1, 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>
9:00-9:05	1. <b>Review &amp; Approval of Minutes</b> December 7, 2016  <b>Committee Reports</b>	<b>Rukaiyah Adams</b> <i>OIC Vice Chair</i>  <b>John Skjervem</b> <i>Chief Investment Officer</i>	1
9:05-9:10	2. <b>Special Officer Election</b>	<b>Council Members</b>	2
9:10-10:00	3. <b>Private Equity Review and 2017 Plan</b> <i>OPERF Private Equity Portfolio</i>	<b>Michael Langdon</b> <i>Senior Investment Officer</i> <b>David Fann</b> <i>TorreyCove Partners</i> <b>Tom Martin</b> <i>TorreyCove Partners</i>	3
10:00-10:45	4. <b>Real Estate Portfolio Review</b> <i>OPERF Real Estate Portfolio</i>	<b>Tony Breault</b> <i>Senior Investment Officer, Real Estate</i> <b>Austin Carmichael</b> <i>Investment Officer, Real Estate</i> <b>Christy Fields</b> <i>Pension Consulting Alliance</i> <b>David Glickman</b> <i>Pension Consulting Alliance</i>	4
10:45-11:00	----- <b>BREAK</b> -----		
11:00-11:05	5. <b>Annual Placement Agent Report</b>	<b>John Hershey</b> <i>Director of Alternative Investments</i>	5

- 11:05-11:10 6. Proposed 2018 OIC Meeting Dates** **John Skjervem** **6**
- 11:10-11:30 7. Fixed Income Policy Update** **Tom Lofton** **7**  
*OPERF Fixed Income Portfolio* *Investment Officer, Fixed Income*  
**Michael Viteri**  
*Senior Investment Officer, Public Equity*

**B. Information Items**

- 11:30-11:35 8. Asset Allocations & NAV Updates** **John Skjervem** **8**  
a. Oregon Public Employees Retirement Fund  
b. SAIF Corporation  
c. Common School Fund  
d. Southern Oregon University Endowment Fund
- 9. Calendar — Future Agenda Items** **9**
- 10. Other Items** **Council Members**  
**Staff**  
**Consultants**

**C. Public Comment Invited**

10 Minutes

TAB 1 – REVIEW & APPROVAL OF MINUTES

December 7, 2016 Regular Meeting

OST Committee Reports – Verbal



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

OREGON INVESTMENT COUNCIL  
DECEMBER 7, 2016  
MEETING MINUTES

Members Present: Katy Durant, Rukaiyah Adams, Ted Wheeler, Rex Kim, John Russell and Steve Rodeman

Staff Present: Darren Bond, John Skjervem, Deena Bothello, Karl Cheng, May Fanning, Karl Hausafus, Michael Langdon, Perrin Lim, Paola Nealon, Jen Plett, Jen Peet, David Randall, Priyanka Shukla, James Sinks, Michael Viteri, Garrett Cudahey, Tony Breault, Amanda Kingsbury, Darren Bond, Kristin Dennis, Austin Carmichael, Dana Millican, Ricardo Lopez, William Hiles, Andrew Coutu, Jo Recht, Roy Jackson, Mark Selfridge, Christian Maynard-Philipp, Amanda Hampton, Angela Schaffer, Ben Mahon, Mike Mueller, Carmen Leiva, Debra Day and Marjorie Taylor

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

Legal Counsel Present: Dee Carlson, Oregon Department of Justice

The December 7<sup>th</sup>, 2016 OIC meeting was called to order at 9:02 am by Kay Durant, OIC Chair.

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

**MOTION:** With corrections, Mr. Russell moved approval and Ms. Adams seconded a motion to approve the October 26, 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 October 26, 2016 OIC meeting:

**Private Equity Committee**

November 29, 2016	TDR Capital Fund IV	€200 million
November 29, 2016	Veritas Capital Fund VI	\$250 million

**Alternatives Portfolio Committee**

November 17, 2016	Tillridge Global Agribusiness Partners II	\$100 million
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**Opportunity Portfolio Committee**

None

**Real Estate Committee**

None

**Other**

November 22, 2016      Taurus Mining Finance Annex Fund<sup>1</sup>      \$50 million

**II.      9:05 am      JPMCB Strategic Property Fund – OPERF Real Estate Portfolio**

Tony Breault, Senior Investment Officer, Real Estate presented Ann Cole, Managing Director & Portfolio Manager, J.P. Morgan Asset Management and Alexia Gottschalch, Managing Director & Head of Client Strategy, J.P. Morgan Asset Management who talked about the JPMCB Strategic Property Fund (“SPF” or the “Fund”) in further detail.

Founded in 1799 by J. Pierpont Morgan, JPMorgan Chase & Co. (“JPM”) is a financial services institution with global capabilities across a wide range of products and services for both retail and institutional clients. As a publicly-traded firm with approximately \$2.4 trillion of assets under management at December 31, 2015, JPM is a global leader in asset management, investment banking, consumer finance, small businesses and commercial banking, financial transaction processing, and private equity. SPF falls under JPMIM, a SEC-registered investment advisor, and is managed by the Global Real Assets (“GRA”) division within the JP Morgan Asset Management (“JPMAM”) business line.

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

Mr. Breault recommended approval of an up to \$300 million commitment to SPF, subject to the satisfactory negotiation of all terms and conditions with Staff working in concert with legal counsel.

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

Note: OIC Chair, Katy Durant abstained from participating in and voting on this agenda item due to a self-disclosed conflict of interest.

**III.      9:47 am      EQT Infrastructure Fund III – OPERF Alternative Portfolio**

Ben Mahon, Senior Investment Officer, Alternatives introduced Andreas Huber, Partner, EQT Partners (“EQT” or the “Firm”) who provided the Council with a presentation on EQT’s history, strategy and achievements.

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

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<sup>1</sup> Approved using staff discretion per OIC Policy ADV 702.

capital; and credit. EQT's efforts in infrastructure are included in the Firm's real assets investment strategy.

Staff and consultants TorreyCove recommended a €200 million commitment to EQT Infrastructure III (No. 2) SCSp ("EQT Infra III" or the "Fund") for the OPERF Alternatives Portfolio, subject to the satisfactory negotiation of terms and conditions with Staff working in concert with legal counsel.

**MOTION:** Mr. Russell moved approval of the staff recommendation. Mr. Kim seconded the motion which then passed by a vote of 5/0.

**IV. 10:40 am Fixed Income Program Review – OPERF Fixed Income Portfolio**

Tom Lofton, Investment Officer, Fixed Income presented the OPERF Fixed Income Portfolio annual review including a summary of the portfolio's objectives, investment strategy and performance. He then recommended select policy revisions to accommodate the application of updated portfolio management capabilities to internally-managed fixed income mandates.

**MOTION:** Mr. Kim moved approval of Staff's proposed Appendix B revisions and deferred a vote on Staff's proposed Appendix C revisions. Mr. Russell seconded the motion which then passed by a vote of 5/0.

**V. 11:22 am OSTF Review – Oregon Short Term Fund**

Garrett Cudahey, Investment Officer, Fixed Income and Angela Schaffers, Investment Analyst, Fixed Income provided the Council with an informational update and annual review of the Oregon Short Term Fund including a summary of the fund's objectives, investment strategy, performance and governance structure.

**VI. 11:36 am Q3 2016 Performance & Risk Report – OPERF**

Karl Cheng, Investment Officer, Portfolio Risk & Research presented and discussed an updated view of the OPERF risk dashboard, while Janet Becker-Wold from Callan Associates provided a corresponding update on OPERF performance for the period ended September 30, 2016.

**VII. 11:51 am Currency Project Introduction – OPERF**

Jiangning (Jen) Plett, Senior Internal Investment Auditor and Karl Cheng provided the OIC with an introduction to the OPERF currency project and discussed the merits of a strategic currency management policy.

**VIII. 12:20 pm IAP Update Discussion – OPERF**

Karl Cheng and David Randall, Director of Operations gave an update on the Individual Account Program.

**IX. 12:36 pm Asset Allocation & NAV Updates**

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

**X. 12:36 pm Calendar – Future Agenda Items**

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

**XI. 12:36 pm Other Items**

Ms. Adams announced that this OIC meeting will be the last for Chair Durant and Treasurer Wheeler as the term for both will end this month.

**12:37 pm**      **Public Comments**

Michael Pineschi, Researcher with UniteHere! submitted written materials to Council members regarding Oaktree HUD loans, while Bill Parish from Parish & Company provided a public statement. In his remarks, Mr. Parish encouraged a closer focus on tax policy in light of the Trump Administration's proposed changes thereto. Specifically, Mr. Parish highlighted corporate deductions and net operating losses as areas of particular concern.

Ms. Durant adjourned the meeting at 12:41 pm.

Respectfully submitted,



May Fanning  
Executive Support Specialist

## TAB 2 – Special Officer Election



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 4.00.00*

## INV 101: Oregon State Treasury Support for the Oregon Investment Council

### OREGON INVESTMENT COUNCIL POLICY

#### INTRODUCTION & OVERVIEW

##### Summary Policy Statement

The Oregon Investment Council ("OIC" or "Council") formulates broad policies for the investment and reinvestment of moneys in the investment funds and the acquisition, retention, management, and disposition of investments of the investment Funds (Fund or Funds). The voting members of the Council include the State Treasurer and four appointees of the Governor. The Public Employees Retirement System (PERS) Director is an ex officio, non-voting member of the Council. The OIC is responsible for approving and revising policies. The Chief Investment Officer, working with Investment Division staff, is responsible for approving and revising procedures, developing OIC meeting agendas, and drafting OIC resolutions. OST Investment Division staff provide administrative and research support to the Council, and are responsible for recording, transcribing, and distributing OIC meeting minutes.

##### Authority

ORS 182.010-020, ORS 293.721-726, ORS 293.731

### POLICY PROVISIONS

#### Policy Statements

1. Develop OIC Meeting Agendas
  - a. The Chief Investment Officer (CIO), in coordination with the OIC Chair and State Treasurer, is responsible for constructing an agenda for each OIC meeting.

- b. The CIO shall produce the agenda established in (a) and distribute it and any pertinent documents or supporting materials to Council members at least one week prior to any regularly-scheduled OIC meeting.
  - c. Any Council member may at any time request that the OIC Chair place one or more items on a forthcoming OIC meeting agenda. To provide staff with sufficient preparation time to comply with (b) above, such additional agenda item requests should be sent to the OIC Chair no less than two weeks in advance of the next regularly-scheduled OIC meeting.
2. Record, Transcribe and Distribute OIC Meeting Minutes
    - a. A member of the Investment Division staff shall record and distribute OIC meeting minutes. Approved minutes, except those taken during executive session, shall be posted to the OST website along with a corresponding audio recording.
3. Draft OIC Resolutions
    - a. The CIO or staff may draft policies or resolutions for OIC action upon request. All advisors to the Council, including but not limited to investment advisors, OST staff members and legal counsel, when practicable, shall submit to the Council for its consideration written recommendations, whenever OST staff and legal counsel determine Council action is required.
    - b. From these written recommendations, OST staff shall have prepared for the Council's consideration appropriate forms of motion. Whenever practicable, OST staff shall review and advise the Council in writing whether proposed Council action concerning investments falls within or outside of existing investment policies, and, if within, shall identify the applicable policy or policies.
4. Staff and Research Support
    - a. Should the OIC wish to investigate or research a matter related to current or potential investment activities, OST Investment Division staff shall provide support and assistance as required.

## Exceptions

None.

## PROCEDURES and FORMS

- A. Rules of Conduct at Oregon Investment Council Meetings

## 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:



[Rules of Conduct at Oregon Investment Council Meetings](#)

### 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

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# OREGON INVESTMENT COUNCIL POLICY

## Meeting Conduct Rules

### **Applicability of Rules**

1. These rules are applicable to convened meetings, regular and special, of the Oregon Investment Council (“OIC” or “Council”).
2. In consultation and coordination with the Chief Investment Officer (the “CIO”) of the Oregon State Treasury (OST), the OIC Chair will schedule approximately eight Council meetings during each calendar year. The OIC Chair may call additional, special or informal meetings as deemed necessary or advisable, and may hold these or regularly-scheduled meetings by telephone. OIC meetings held in Executive Session shall be conducted in accordance with ORS 192.660.
3. **Chair**: In accordance with INV 101, the Chair is responsible for consulting and coordinating with the CIO to develop and set all OIC meeting agendas. Additionally, the Chair shall preside over all OIC meetings, regular and special. The primary roles of the Chair are to a) ensure OIC meetings are as efficient and productive as possible and b) facilitate communication among OIC members, OST staff and other constituents and stakeholders.
4. **Meeting Notice and Agenda**: The CIO shall provide notice of meetings in compliance with ORS 192.610-690, and such notice shall contain a copy of the meeting agenda setting forth, with reasonable clarity, the matters scheduled for OIC members’ review and discussion.
5. **Quorum**: Three of the Council’s five voting members shall constitute a quorum.
6. **Majority Vote**: An affirmative vote of three of the Council’s five voting members is required for Council approval of recommendations and resolutions.
7. **Conflict of Interest**: As defined in ORS 244.120, rules promulgated by the Oregon Government Ethics Commission and other related Council policies, Council members shall announce any and all potential or actual conflicts of interest prior to taking action on an issue, recommendation or resolution that is presented to the Council for its consideration or approval. Announced conflicts should be recorded as provided in Oregon Revised Statutes 244.130 (see also: INV 104 OIC Standards of Ethics). For purposes of this policy, “take action” means to vote, debate, recommend or discuss.
8. **Voting**: Except in the case of an actual conflict of interest, OIC members, when present, shall vote either aye or nay on any issue, recommendation or resolution presented to the Council for its consideration or approval. If such an actual conflict of interest exists, the affected member shall make a declaration of the conflict and excuse him or herself from the corresponding Council vote or discussion.
9. **Record of Votes**: The OIC’s legal representative shall tally member votes through an oral roll call process.
10. **Recess or Adjournment**: Given a quorum, either the Chair or a majority vote among the Council’s voting members may recess or adjourn any Council meeting.

11. **Council Elections:** The Council shall elect a Chair and Vice Chair at the last regularly-scheduled Council meeting in each odd-numbered calendar year. The Chair and Vice Chair shall both serve two-year terms and may be reelected to consecutive terms provided that, per ORS 293.711, no member may serve as Chair for more than four years in any consecutive 12-year period.

Between biennial elections, and with at least one week's notice, a majority of the Council's voting members may request a special election, held at the next regularly-scheduled Council meeting, to select officers for vacancies in an otherwise unexpired term.

In the event that a Chair or Vice Chair resigns, is removed, or whose service on the Council ends, the Council, at its next regularly-scheduled meeting, shall elect a successor.

TAB 3 – Private Equity Review and 2017 Plan  
OPERF Private Equity Portfolio



# 2017 Private Equity Annual Plan & Review

February 2017

# 2017 Private Equity Annual Plan & Review - Agenda

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- ▶ **Executive Summary – Page 3**
- ▶ **Investment Environment – Pages 4 - 5**
- ▶ **OPERF 2016 Private Equity Year In Review – Pages 6 - 8**
  - ▶ Initiatives – Page 6
  - ▶ New Investment Activity – Page 7
  - ▶ Cash Flow Activity – Page 8
- ▶ **OPERF Private Equity Performance Review – Pages 9 - 13**
  - ▶ Relative Performance – Page 9
  - ▶ Vintage Year Performance – Pages 10 - 11
  - ▶ Fund Selection – Page 12
  - ▶ Private Equity Return Attribution – Page 13
- ▶ **OPERF Private Equity Program Portfolio Update – Pages 14 - 19**
  - ▶ Allocation Relative to Target – Page 14
  - ▶ Portfolio Construction – Pages 15 - 19
    - ▶ Geographic Diversification – Page 15
    - ▶ Strategy Diversification – Page 16
    - ▶ Sector Diversification – Page 17
    - ▶ Time Diversification – Page 18
    - ▶ Manager Diversification – Page 19
- ▶ **2017 Private Equity Plan – Pages 20 - 21**
  - ▶ Investment Pacing – Page 20
  - ▶ Initiatives – Page 21

# Executive Summary

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## ▶ **Investment Environment**

- ▶ 2016 was a relatively flat year from a volume standpoint but purchase prices hit all time highs
- ▶ There continues to be extremely strong demand for private equity despite the fact that the asset class has failed to generate the expected premium over the public markets for more than a decade

## ▶ **OPERF 2016 Private Equity Year In Review**

- ▶ Per the 2016 plan, the OIC approved \$3 billion of commitments across 14 recommendations
- ▶ 2016 was another year of net distributions for the program, and a total of \$7 billion of net distributions have been generated since 2010
- ▶ The current allocation to private equity stands at 20% which is at the high end of the target allocation range (17.5% +/- 4%)

## ▶ **OPERF Private Equity Performance Review**

- ▶ Like the broader private equity asset class, the OPERF program has failed to generate the target premium of 3% over the Russell 300 Index over the past decade
- ▶ From an attribution perspective, the primary detractor continues to be an over-commitment to immediately pre-crisis vintage years (2006-2008)

## ▶ **OPERF Private Equity Program Portfolio Update**

- ▶ The program is broadly in line with respect to the target allocations for strategy/implementation and geography. As a practical matter, our target and actual allocations in both regards are largely dictated by the scale of the program
- ▶ The program continues to have above average exposure to long-dated commitments and above average manager concentration. In both cases, the situation will resolve itself naturally over time

## ▶ **2017 Private Equity Plan**

- ▶ Continue to target commitment pacing of \$2.5-3.5 billion per annum over the next three years
- ▶ Annual commitments to be spread across 10-15 recommendations of \$100-500 million (\$250-300 million average commitment)

# Investment Environment

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## **THE MARKET WAS MOSTLY FLAT FROM A VOLUME STANDPOINT IN 2016 BUT PRICES SET NEW HIGHS**

- ▶ **Mergers & Acquisitions** – closed, developed market transaction volume is up 10% from a value perspective but down 25% from a deal count perspective
  - ▶ M&A transactions have skewed larger with 83% of volume YTD attributable to transaction with EVs at or above \$1 billion
  - ▶ Prices are high but leverage multiples have moderated somewhat
  - ▶ Private Equity's share of M&A volume is above 30% for the first time since 2008
- ▶ **Corporate Leveraged Finance** – new issue volumes are effectively flat versus 2015
  - ▶ U.S. new issue volume is down 13% for HY but up 13% for loans
  - ▶ Europe new issue volume is down 15% for HY but up 20% for loans
- ▶ **Global PE & VC Returns** – as of Q2-16, the asset class has failed to exceed the public markets by at least 300 bps per annum for the past 15 years
  - ▶ Returns for all funds in the ILPA pooled average for the year ending 6/30/16 were 2.4% (IRR). The three-year annualized return stands at 11.6%
- ▶ **U.S. Private Equity** – 2016 has been a “hot” year from a fundraising and purchase price standpoint
  - ▶ Established managers are easily raising capital, and 90% of all funds closed in 2016 met or exceeded target
  - ▶ From an investment perspective, the deal count is off by 18%, but aggregate transaction value is on pace to match 2015. The market has skewed to larger deals and to expensive sectors (software) leading to record purchase prices. Leverage levels have not kept pace which has resulted in median equity contributions above 50%
  - ▶ The exit environment remains strong, but 2016 activity will likely not match the record volumes seen in 2015
- ▶ **U.S. Venture Capital** – 2016 looks to be an up year for fundraising, but a flat year from an investment standpoint
  - ▶ Total financing value is on par with 2015, but activity has skewed to fewer, later, and larger rounds
  - ▶ Exit volumes are tracking 2015, but the IPO market will likely see its lowest level of activity since 2009
- ▶ **Europe Private Equity** – 2016 is shaping up to be a reasonably flat year versus 2015
  - ▶ Fundraising is on pace with the past several years and fund sizes are creeping up, but there are fewer and fewer General Partners bringing sizable Euro denominated funds to market
  - ▶ New investment volumes are down YTD in 2016, and U.S.-based General Partners continue to control a sizeable share of the market (roughly 20%)
  - ▶ Total exit transaction volumes remain reasonably strong with sales to strategic taking a larger share of realization activity 2016
- ▶ A detailed update on the investment environment is available in **Appendix A**

# Investment Environment

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## 2016 QUALITATIVE THEMES

### ▶ **General Partners Themes**

- ▶ **Product Proliferation** – the trend of established GPs launching new product lines (debt funds, small cap funds, public equity strategies, etc.) continued to gain momentum in 2016
- ▶ **GP Stakes** – significant institutional capital has been organized to acquire passive, minority equity interests in GPs, and 2016 saw an uptick in transaction volume. GPs are using these deals to finance founder succession, tax optimization, and growth plans, but these transactions create a more challenging alignment picture for LPs
- ▶ **Co-Investment** – LP demand continues to grow at an exponential pace, and GPs are increasingly finding it challenging to manage co-invest processes and the regulatory uncertainty around allocations
- ▶ **Structures** – large GPs and large LPs continue to dialogue about new separate account structures as a replacement or supplement to traditional multi-investor limited partnerships, but little actual innovation has occurred as it is challenging to find solutions that address the discrete issues important to both parties

### ▶ **Limited Partner Themes**

- ▶ **Competition** – for the most part, allocations to the asset class are increasing and new LP program launches continue to have a material impact. Further, LPs as a group continue to pursue concentration by requesting larger allocations with fewer managers
- ▶ **Co-Investment** – As noted above, co-invest continues as a dominant theme

### ▶ **Legal Negotiations/Terms**

- ▶ **Terms** – based on a strong fundraising market, the balance of power in most legal negotiations remains firmly on the side of the GPs
  - ▶ Market economic terms remain mostly unchanged, but GPs continue to pursue greater investment and operational flexibility
  - ▶ There is increasing noise in the market about changes to distribution waterfalls, but to date few GPs have asked for revised language relative to prior funds
  - ▶ Despite very strong demand, GPs are still commonly offering management fee discounts for first closers and for LPs committing at or above size thresholds
- ▶ **Negotiations** – in 2016, fund counsel consistently advised GPs to pursue significant redrafting of LPAs and side letters unnecessarily driving up fund formation costs

### ▶ **Regulatory/Transparency**

- ▶ **SEC** – the SEC continues to be in dialogue with several large GPs mostly on the topic of fee transparency, and smaller GPs continue to invest heavily in regulatory compliance regimes
- ▶ **ILPA Fee Template** – adoption continues to spread in the GP community which is encouraging, but at this early stage many LPs are not set up administratively to make use of the data
- ▶ Solid progress continues to be made with respect to transparency, but both GPs and LPs could benefit from greater standardization of reporting, questionnaires and legal documentation

# OPERF 2016 Private Equity Year In Review – Initiatives

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## 2016 OST Private Equity Staff Priorities

### 1. **\$2.5-3.5 billion of new fund commitments**

COMPLETED – the OIC approved roughly \$3 billion of new commitments over the course of 2016

### 2. **Private Equity Consultant RFP**

COMPLETED – a search process was initiated in the spring of 2016 which culminated in a recommendation at the September 14 OIC meeting to engage in a non-discretionary consulting contract with TorreyCove. That recommendation was approved and a new contract was finalized in December

### 3. **Effect continued enhancements to due diligence and monitoring processes**

ONGOING – Staff implemented enhancements to both due diligence and monitoring procedures during the year, but further enhancements are needed on both fronts. Enhancements to date have focused mostly on implementing more uniform processes and improved documentation

### 4. **Study solutions for the Program’s long-dated fund portfolio**

ONGOING – Staff explored a range of solutions to reduce the administrative burden of monitoring the program’s mature vintage year exposures. To date, none of the third party options explored has seemed compelling enough from a cost/benefit perspective to pursue. Staff and TorreyCove are currently focused on establishing a more collaborative and targeted coverage model for the program’s legacy relationships

### 5. **Collaborate with audit team on 2016 process audit**

COMPLETED – PE Staff was shadowed on two due diligence projects in the first half of the year. The output of that audit process was presented by OST’s internal audit team at the September 14 OIC meeting as part of the 2016 Operational Review

### 6. **Support risk team on integration of private markets into Aladdin**

ONGOING – in 2015 and 2016, PE staff and TorreyCove facilitated a quarterly feed of portfolio level exposures into Aladdin. Staff and TorreyCove will look for further opportunities to enhance the quality and granularity of that data as deemed necessary by the Risk Team

# OPERF 2016 Private Equity Year In Review – New Investment Activity

During the year the OIC approved 14 separate investment recommendations which resulted in \$3 billion of new capital commitments. The program's new investment activity during the course of the year was broadly on plan:

- ▶ **PACING** – the \$3 billion vintage year commitment was in the middle of the target range for the year (\$2.5-3.5 billion)
- ▶ **STRATEGY** – 78% buyout, 17% distressed debt, and 5% venture capital
- ▶ **GEOGRAPHY** – 67% domestic and 33% international (projection based on individual fund targets)
- ▶ **COMMITMENT SIZE** – with the exception of the VC commitments, all commitments were in the target commitment range (\$100-500 million)

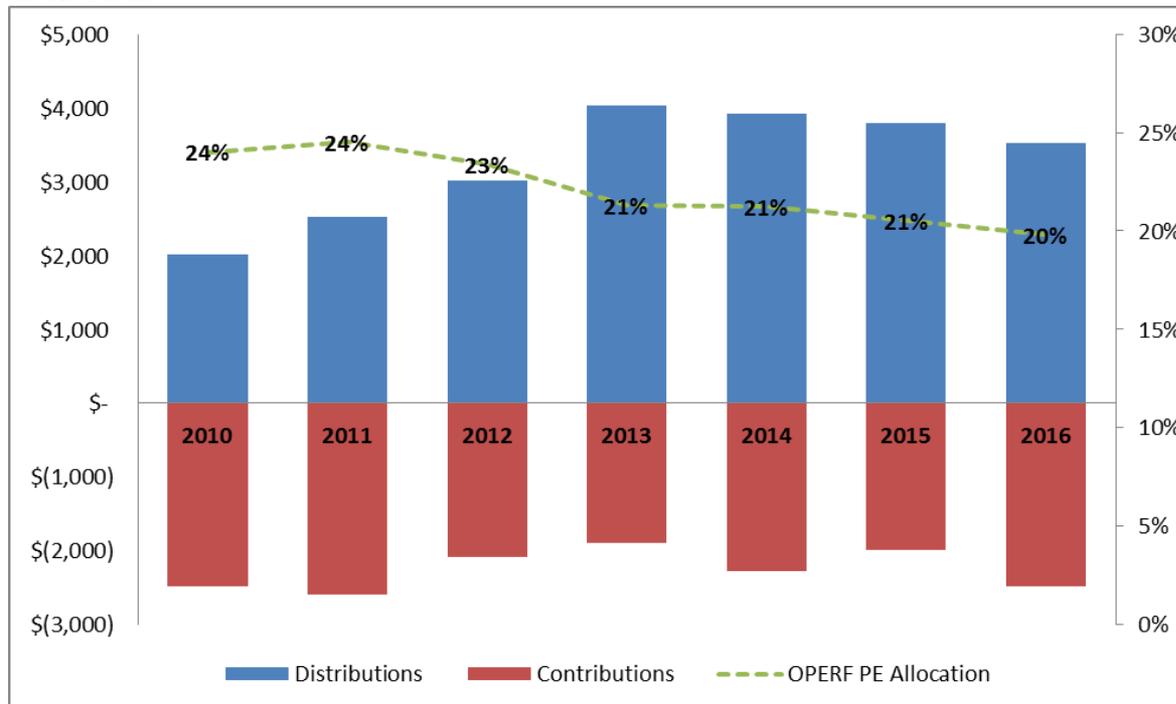
FUND NAME	STRATEGY	SEGMENT	GEOGRAPHY	COMMITMENT
1 ACON Equity Partners IV & AEP IV Co-Inv	Buyout	SMID	North America	\$150,000,000
2 Apax IX	Buyout	Large	Global	\$250,000,000
3 Green Equity Investors VII	Buyout	Large	North America	\$250,000,000
4 MBK Partners IV	Buyout	Large	Asia	\$200,000,000
5 Permira VI	Buyout	Large	Global	€ 225,000,000 *
6 Sixth Cinven Fund	Buyout	Large	Europe	€ 125,000,000 *
7 TDR Capital Fund IV	Buyout	SMID	Europe	€ 180,000,000 *
8 The Veritas Capital Fund VI	Buyout	SMID	North America	\$250,000,000
9 Vista Equity Partners Fund VI	Buyout	Large	North America	\$500,000,000
10 Vista Foundation Fund III	Buyout	SMID	North America	\$200,000,000
<b>BUYOUT SUB-TOTAL</b>				<b>\$2,361,800,000</b>
11 Centerbridge Special Credit Partners III & III Flex	Distressed Debt	Large	Trans-Atlantic	\$500,000,000
<b>DISTRESSED SUB-TOTAL</b>				<b>\$500,000,000</b>
12 GGV Capital VI, VI Plus & Discovery	Venture Capital	Multi-Stage	US/China	\$80,000,000
13 Mayfield XV & Select	Venture Capital	Multi-Stage	North America	\$40,000,000
14 USV 2016	Venture Capital	Early-Stage	North America	\$19,000,000
<b>VENTURE CAPITAL SUB-TOTAL</b>				<b>\$139,000,000</b>
<b>TOTAL</b>				<b>\$3,000,800,000</b>

\* Euro = \$1.06

# OPERF 2016 Private Equity Year In Review – Cash Flow Activity

The OPERF private equity program processed capital contributions of roughly \$2.5 billion in 2016 and distributions of \$3.5 billion for a net cash flow of \$1 billion. The chart below depicts annual cash flows since 2010

- ▶ 2016 represented the program's fifth consecutive net distribution year, bringing its cumulative net distributions since 2010 to \$7 billion
- ▶ The chart below also presents OPERF's private equity allocation since 2010. That allocation currently represents roughly 20% of total OPERF value which is down from 24% in 2010 and 2011
  - ▶ As a reminder, in the middle of 2015 the OIC established a revised target private equity allocation of 17.5% (+/- 4%)
  - ▶ The declining allocation to private equity is mostly attributable to appreciation in OPERF's value at the total fund level. The current value of the private equity allocation has remained reasonably stable at roughly \$13-14 billion despite strongly positive net distributions



# OPERF Private Equity Performance Review – Relative Performance

The OPERF private equity program is benchmarked against the Russell 3000 Index plus 3%. On this basis, the program has underperformed over the past decade

- ▶ The chart below presents trailing annualized IRRs for the OPERF PE program as compared to the benchmark. As the chart illustrates, the program has underperformed by 400bps, 890bps and 180bps per annum for the three-, seven- and ten-year periods, respectively
- ▶ The bottom portion of the chart below compares the program to the Cambridge Associates All Funds Pooled Average. This approach benchmarks the program against the private equity asset class at large. As depicted in the chart, the OPERF PE program has generated returns roughly equivalent to the broader asset class for the past 10 years
  - ▶ As detailed later in this presentation, returns for the program and for the asset class in general continue to be hurt by excess exposure to the 2005-2008 vintage years

	<b>3 YR.</b>	<b>7 YR.</b>	<b>10 YR.</b>	<b>SINCE INCEPTION</b>
<b>OST PE PROGRAM - Q3-16</b>	10.3%	12.6%	9.7%	15.4%
<b>RUSSELL 3000 + 300 bps</b>	14.3%	21.5%	11.5%	15.3%
<b>VALUE ADD</b>	<b>-4.0%</b>	<b>-8.9%</b>	<b>-1.8%</b>	<b>0.1%</b>
<b>OST PE PROGRAM - Q2-16</b>	11.3%	10.3%	9.7%	15.4%
<b>CA POOLED AVERAGE</b>	11.7%	10.0%	9.9%	12.8%
<b>VALUE ADD</b>	<b>-0.4%</b>	<b>0.3%</b>	<b>-0.2%</b>	<b>2.6%</b>

# OPERF Private Equity Performance Review – Vintage Year Performance

The chart to the right presents vintage year performance since inception for the OPERF private equity program

- ▶ As the chart depicts, the program has consistently generated second quartile performance since 2005
- ▶ The chart also reflects that the program has volatile vintage pacing (annual commitments) which has resulted in overexposure to the 2005, 2006, 2007 and 2008 vintages
- ▶ Performance for the OPERF program and the private equity asset class as a whole have suffered from over-commitments to weak vintage years in the second half of the 2000s
  - ▶ Note: vintage year in this context is determined by initial capital call, not the OIC approval year

As of JUNE 30, 2016

VINTAGE YEAR	COMMITMENTS	OPERF TVPI	OPERF TVPI CA QUARTILE	OPERF IRR SINCE INCEPTION	OPERF IRR CA QUARTILE
1981	194,090,840	3.44	1	22.5%	1
1983	25,000,000	3.30	1	39.7%	1
1984	99,500,000	4.31	1	28.7%	1
1985	65,000,000	3.40	1	16.8%	2
1986	98,330,000	7.07	1	26.4%	1
1987	726,670,000	2.07	3	8.8%	3
1990	62,750,000	1.90	3	12.4%	3
1991	130,000,000	2.85	1	29.0%	1
1992	50,000,000	1.82	3	27.1%	1
1993	525,000,000	2.14	2	21.0%	2
1994	180,214,143	1.38	3	6.1%	4
1995	213,000,000	1.51	3	11.3%	3
1996	400,000,000	1.74	2	16.3%	2
1997	1,789,000,000	1.64	2	10.4%	3
1998	955,000,000	1.39	3	7.5%	3
1999	1,524,320,840	1.87	1	14.2%	1
2000	450,000,000	1.75	2	11.3%	2
2001	605,471,776	2.14	1	26.5%	1
2002	1,391,749,603	1.99	1	17.7%	2
2003	544,419,604	2.06	1	14.8%	2
2004	1,058,168,597	1.91	1	15.6%	1
2005	2,132,477,993	1.47	2	6.7%	2
2006	4,423,860,620	1.43	2	6.7%	2
2007	3,416,322,875	1.50	2	9.0%	2
2008	3,841,587,875	1.52	2	11.8%	2
2009	489,635,583	1.33	3	8.1%	3
2010	1,112,892,761	1.50	2	12.7%	2
2011	2,477,009,498	1.36	2	12.6%	2
2012	2,261,887,317	1.31	2	14.4%	2
2013	1,708,286,691	1.19	2	12.0%	2
2014	1,032,978,699	1.10	N/A	N/A	N/A
2015	2,892,790,000	0.97	N/A	N/A	N/A
2016	3,630,932,500	0.97	N/A	N/A	N/A
<b>TOTAL</b>	<b>\$40,508,347,815</b>	<b>1.61</b>		<b>15.4%</b>	

# OPERF Private Equity Performance Review – Vintage Year Performance

The chart below attempts to highlight the impact the 2005-2008 vintage years have had on OPERF's performance over the past decade

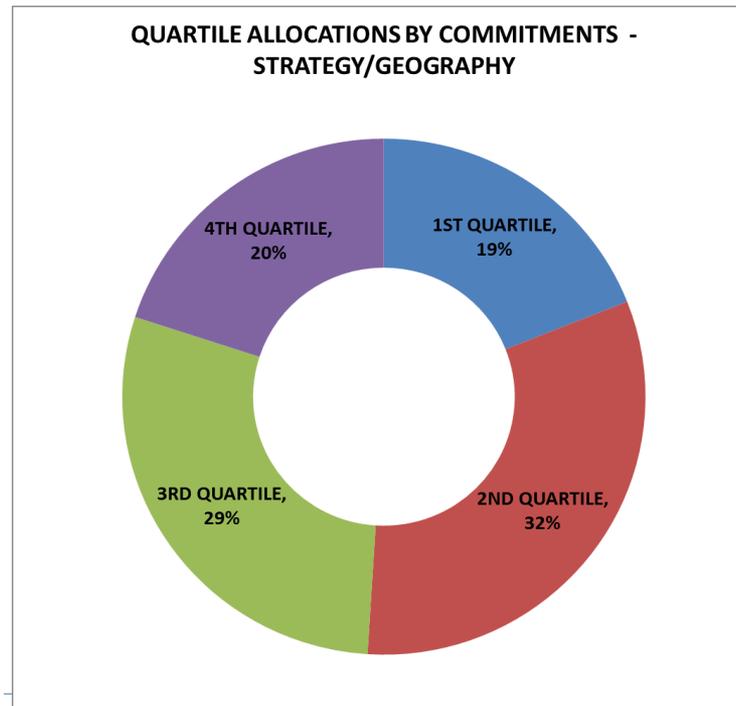
- ▶ The left side of the page reflects the 1-, 3-, 5- and 10-year horizon IRRs by vintage. As noted below, the 2005-2008 vintages have generally generated high single or low double-digit annual IRRs for the majority of this period
- ▶ The right side of the chart reflects trailing exposures by vintage year. As seen therein, the 2005-2008 vintage years started the 1-, 3- and 5-year periods representing 55%, 65% and 72%, respectively of total FMV exposure. At 6/30/16 those vintages still represented 44% of FMV

HORIZON IRRs BY VINTAGE - AS OF 6/30/16					TRAILING PERIOD VINTAGE YEAR EXPOSURES (FMV)										
VY	1 year	3 years	5 years	10 years	6/30/2016	6/30/2015	6/30/2014	6/30/2013	6/30/2012	6/30/2011	6/30/2010	6/30/2009	6/30/2008	6/30/2007	6/30/2006
1987	-	-	140.4%	8.6%	-	-	-	-	-	0.1%	0.1%	0.1%	0.1%	0.5%	0.3%
1990	-	-	32276.8%	8.4%	-	-	-	-	-	-	-	-	0.0%	0.0%	0.1%
1991	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1992	-	-	-	-82.5%	-	-	-	-	-	-	-	-	-	-	0.0%
1993	-	-	4.7%	28.6%	-	-	-	-	-	0.0%	0.0%	0.0%	0.0%	0.2%	0.3%
1994	-	-	-67.4%	-1.0%	-	-	-	-	-	-	0.1%	0.2%	0.2%	0.4%	0.6%
1995	-	-	-	48.9%	-	-	-	-	-	-	0.1%	0.1%	0.1%	0.2%	0.5%
1996	-5.0%	-23.8%	-47.3%	-6.7%	-	-	-	-	0.1%	0.2%	0.2%	0.3%	0.7%	1.2%	1.6%
1997	27.8%	9.0%	-0.3%	15.6%	0.4%	0.3%	0.3%	0.3%	0.3%	0.8%	1.8%	3.2%	3.8%	6.4%	10.7%
1998	16.4%	14.6%	4.2%	-0.3%	0.1%	0.1%	0.1%	0.3%	0.4%	0.6%	0.8%	1.0%	1.2%	3.1%	5.4%
1999	-7.1%	6.2%	-1.0%	17.2%	0.1%	0.3%	0.5%	0.8%	1.4%	2.5%	4.2%	5.6%	6.6%	13.4%	17.7%
2000	-24.6%	-10.5%	2.2%	7.9%	0.3%	0.5%	0.6%	0.8%	1.4%	1.7%	2.2%	2.9%	3.4%	3.7%	6.5%
2001	-18.5%	-2.7%	-0.7%	19.5%	0.2%	0.2%	0.4%	0.7%	0.9%	1.3%	2.0%	2.4%	2.7%	4.4%	7.8%
2002	1.5%	14.6%	5.7%	8.9%	1.1%	2.4%	2.6%	4.1%	5.7%	7.2%	9.0%	10.0%	11.6%	18.9%	22.6%
2003	-4.9%	16.3%	14.4%	12.6%	0.6%	1.3%	1.4%	2.2%	2.6%	3.4%	4.0%	4.6%	5.5%	7.2%	6.6%
2004	-8.9%	15.3%	9.7%	15.6%	1.0%	1.5%	2.3%	3.7%	5.5%	6.8%	7.0%	8.9%	8.7%	10.0%	8.7%
2005	5.4%	10.3%	9.6%	7.0%	3.8%	5.3%	7.2%	10.2%	11.3%	13.3%	14.1%	15.4%	17.3%	18.2%	9.1%
2006	-4.2%	8.0%	9.6%	6.7%	14.2%	18.0%	20.1%	23.0%	24.8%	25.8%	26.9%	26.6%	27.5%	10.7%	1.5%
2007	0.9%	10.9%	9.8%	9.0%	10.7%	13.7%	17.0%	18.9%	19.2%	17.9%	16.1%	12.7%	9.3%	1.4%	-
2008	-3.8%	11.7%	12.7%	11.8%	14.8%	17.5%	20.4%	19.4%	17.2%	14.4%	10.6%	5.7%	1.6%	-	-
2009	-1.7%	5.3%	8.0%	-	1.8%	2.3%	2.5%	2.6%	2.2%	1.4%	0.8%	0.3%	-	-	-
2010	1.9%	14.3%	13.7%	-	7.8%	7.9%	6.2%	4.5%	2.8%	1.7%	0.1%	-	-	-	-
2011	5.3%	14.3%	12.8%	-	15.9%	13.1%	10.4%	6.5%	3.9%	0.7%	-	-	-	-	-
2012	12.3%	15.7%	14.6%	-	12.4%	8.9%	5.8%	1.7%	0.2%	-	-	-	-	-	-
2013	12.4%	12.6%	12.2%	-	7.6%	4.8%	2.0%	0.3%	-	-	-	-	-	-	-
2014	13.0%	9.4%	9.1%	-	2.8%	1.2%	0.1%	-	-	-	-	-	-	-	-
2015	-1.4%	-	-	-	3.9%	0.7%	-	-	-	-	-	-	-	-	-
2016	-	-	-	-	0.6%	-	-	-	-	-	-	-	-	-	-
<b>TOTAL</b>	<b>1.9%</b>	<b>11.3%</b>	<b>10.3%</b>	<b>9.7%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

# OPERF Private Equity Performance Review – Fund Selection

The charts below present OPERF’s fund selection performance weighted by committed capital as compared to the Cambridge Associates quartiles

- ▶ The chart below compares each fund in the OPERF track record from inception to 2013 to peer funds in same vintage year pursuing similar strategies and geographies. On this basis, only 51% of committed capital has been allocated to funds generating above median performance
- ▶ As noted in last year’s annual review, the private equity general partner universe consists of roughly 9,000 managers on a global basis. Of that universe, OST Staff tracks roughly 1,000 managers that raise funds large enough for potential OPERF consideration
  - ▶ The challenge for OST Staff (and the Council) is to commit significant capital each year to funds that generate top quartile or at least second quartile results relative to the full universe while only 11% of that full universe is available/suitable for OPERF consideration
  - ▶ At any given time, OST Staff is engaged with 40-50 managers, a group that represents a mere 0.6% of the full universe and only 5% of the available/suitable universe



# OPERF Private Equity Performance Review – Private Equity Return Attribution

- ▶ **Sources of Return in Private Equity** – like all forms of investment, private equity return attribution represents the sum of market timing, asset allocation, and security selection factors
- ▶ **Impact of Market Timing** – in private equity, the market timing factor (for LPs) is reflected in vintage year commitment pacing
  - ▶ Timing has a massive impact on private equity returns as evidenced by the negative impact that weak returns from 2005-2008 vintage year funds and over-commitment to those same vintage year funds continues to have on the asset class
  - ▶ The market timing factor as manifest in OPERF performance matches that of the broader asset class despite the relative maturity of the Oregon program. The material over-commitment to 2006, 2007, and 2008 vintages continues to be a significant drag on OPERF PE performance
    - ▶ However, it is important to note that OPERF’s increased commitment pace was driven by an increase in the fund’s target allocation to private equity early in this period making it a strategic allocation decision and not a tactical timing decision
  - ▶ **To the extent possible, OPERF should endeavor to pursue more consistent commitment pacing going forward to reduce the probability of making bad market timing decisions**
- ▶ **Impact of Asset Allocation** – the asset allocation factor is reflected in the allocation to differing fund “types” (geography, strategy, fund size, etc.)
  - ▶ Geographic allocation at the highest level will have a material impact on performance, but exposure outside of the developed markets is challenging to create for large LPs
  - ▶ Allocation among different strategies (VC, buyout, growth equity, etc.) offers a massive opportunity to outperform or underperform the asset class, but large investors are forced to pursue buyout-biased allocations in order to maintain overall allocation levels
  - ▶ The impact of allocating to “small” funds is challenging to measure
  - ▶ OPERF’s asset allocation roughly matches the asset class with respect to geography and strategy, but skews large with respect to fund size
  - ▶ **Asset allocation is a challenging attribution factor given the scale of Oregon’s program. OST Staff and the Council cannot achieve the desired, strategic PE target in OPERF without investing heavily in large, buyout-focused, developed market funds**
- ▶ **Impact of Security Selection** – the security selection factor for LPs amounts to fund selection
  - ▶ The span of outcomes between funds in the upper and lower quartile in each vintage years remains large, but that span has closed somewhat since 2002 as the asset class has scaled
  - ▶ Since 2005, commitment weighted average performance for the asset class has been broadly in line with median performance suggesting that LPs on the whole have not successfully accessed or capitalized on the security selection factor
  - ▶ Security selection as manifest in OPERF returns has been broadly median since 2005, but the program’s ability to access this lever is materially impacted by the fact that scale has narrowed the addressable universe
  - ▶ **OST Staff and the Council should endeavor improve with respect to security selection, but realistically the opportunity to produce excess returns vis a vis security (i.e., fund) selection is limited. As an alternative, a renewed focus on cost reduction could be pursued to increase net returns**

# OPERF Private Equity Program Portfolio Update – Allocation Relative to Target

The table below presents the program's asset allocation by strategy/implementation and geography relative to targets as of June 30, 2016

- ▶ As the left side of the chart illustrates, the program is broadly in-line with targets from a strategy standpoint
  - ▶ The program continues to grow allocation to buyouts, growth equity and distressed debt while the venture capital, mezzanine and secondary allocations are declining
- ▶ As the right side of the chart illustrates, the program is broadly in-line with targets from a geography standpoint
  - ▶ An increasing element of the program's international exposure is allocated to Global funds. These are funds managed by large, established GPs making them efficient vehicles to create exposure to international markets, especially as we continue to consolidate the manager roster

6/30/2016

INVESTMENT STRATEGY/IMPLEMENTATION							
	MARKET			TOTAL			
	TARGET	VALUE	%	UNFUNDED	%	EXPOSURE	%
<b>BUYOUT</b>	<b>65-85%</b>	<b>\$ 9,262</b>	<b>66%</b>	<b>\$ 6,332</b>	<b>70%</b>	<b>\$ 15,594</b>	<b>68%</b>
LARGE	45-65%	\$ 5,992	43%	\$ 4,370	48%	\$ 10,362	45%
MID	10-25%	\$ 2,893	21%	\$ 1,769	19%	\$ 4,662	20%
SMALL	0-10%	\$ 376	3%	\$ 193	2%	\$ 569	2%
<b>GROWTH</b>	<b>5-10%</b>	<b>\$ 271</b>	<b>2%</b>	<b>\$ 820</b>	<b>9%</b>	<b>\$ 1,091</b>	<b>5%</b>
<b>VENTURE</b>	<b>0-5%</b>	<b>\$ 873</b>	<b>6%</b>	<b>\$ 315</b>	<b>3%</b>	<b>\$ 1,187</b>	<b>5%</b>
<b>SPECIAL SITUATIONS</b>	<b>5-15%</b>	<b>\$ 1,522</b>	<b>11%</b>	<b>\$ 1,075</b>	<b>12%</b>	<b>\$ 2,597</b>	<b>11%</b>
DISTRESSED	0-10%	\$ 1,115	8%	\$ 713	8%	\$ 1,828	8%
MEZZANINE	0-5%	\$ 184	1%	\$ 195	2%	\$ 379	2%
SECONDARIES	0-5%	\$ 223	2%	\$ 167	2%	\$ 391	2%
<b>FUND-OF-FUNDS</b>	<b>0-5%</b>	<b>\$ 1,424</b>	<b>10%</b>	<b>\$ 330</b>	<b>4%</b>	<b>\$ 1,754</b>	<b>8%</b>
<b>CO-INVESTMENTS</b>	<b>0-7.5%</b>	<b>\$ 669</b>	<b>5%</b>	<b>\$ 204</b>	<b>2%</b>	<b>\$ 873</b>	<b>4%</b>
		<b>\$ 14,020</b>	<b>100%</b>	<b>\$ 9,076</b>	<b>100%</b>	<b>\$ 23,096</b>	<b>100%</b>

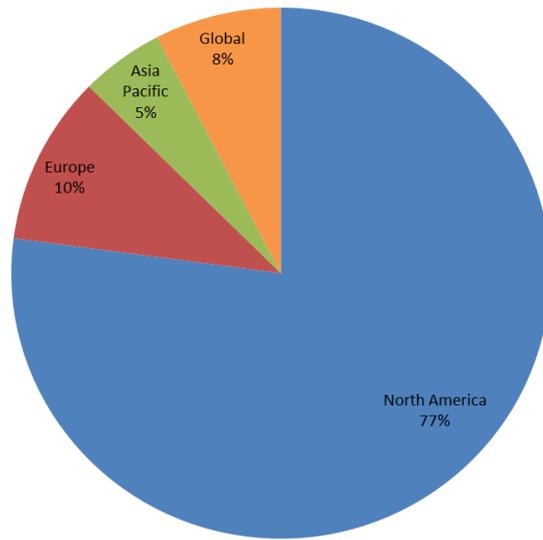
INVESTMENT GEOGRAPHY							
	MARKET			TOTAL			
	TARGET	VALUE	%	UNFUNDED	%	EXPOSURE	%
<b>NORTH AMERICA</b>	<b>60-80%</b>	<b>\$ 10,861</b>	<b>77%</b>	<b>\$ 6,332</b>	<b>70%</b>	<b>\$ 17,192</b>	<b>74%</b>
<b>INTERNATIONAL</b>	<b>20-40%</b>	<b>\$ 3,160</b>	<b>23%</b>	<b>\$ 2,744</b>	<b>30%</b>	<b>\$ 5,904</b>	<b>26%</b>
GLOBAL		\$ 1,009	7%	\$ 1,346	15%	\$ 2,355	10%
ASIA		\$ 614	4%	\$ 616	7%	\$ 1,230	5%
EUROPE		\$ 1,508	11%	\$ 717	8%	\$ 2,225	10%
ROW		\$ 28	0%	\$ 65	1%	\$ 93	0%
		<b>\$ 14,020</b>	<b>100%</b>	<b>\$ 9,076</b>	<b>100%</b>	<b>\$ 23,096</b>	<b>100%</b>

# OPERF Private Equity Program Portfolio Update – Portfolio Construction

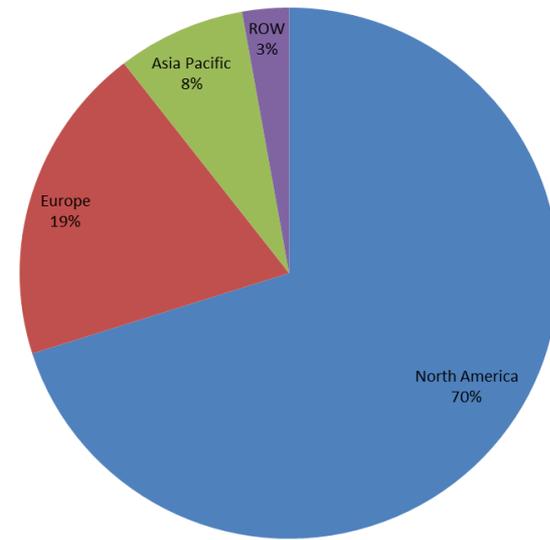
From a geographic diversification standpoint, the OPERF private equity portfolio is well diversified with roughly a third of portfolio company level exposure being international

- ▶ At the fund commitment level, OPERF has a target of 20-40% for international markets, and, on this basis, the program currently finds itself at the low end of this range. The program's FMV at the fund commitment level at 9/30/16 is depicted in the left chart below
- ▶ At the portfolio company level, the portfolio is more international with a material element of the program's North America and Global commitments allocated to international markets. The chart below to the right depicts geographic diversification at the portfolio company level as of 9/30/16
- ▶ OPERF's international exposure will increasingly come from "Global" fund commitments as the program continues to scale and concentrate commitments with a smaller roster of general partners

**Geographic Diversification - Fund Commitment**



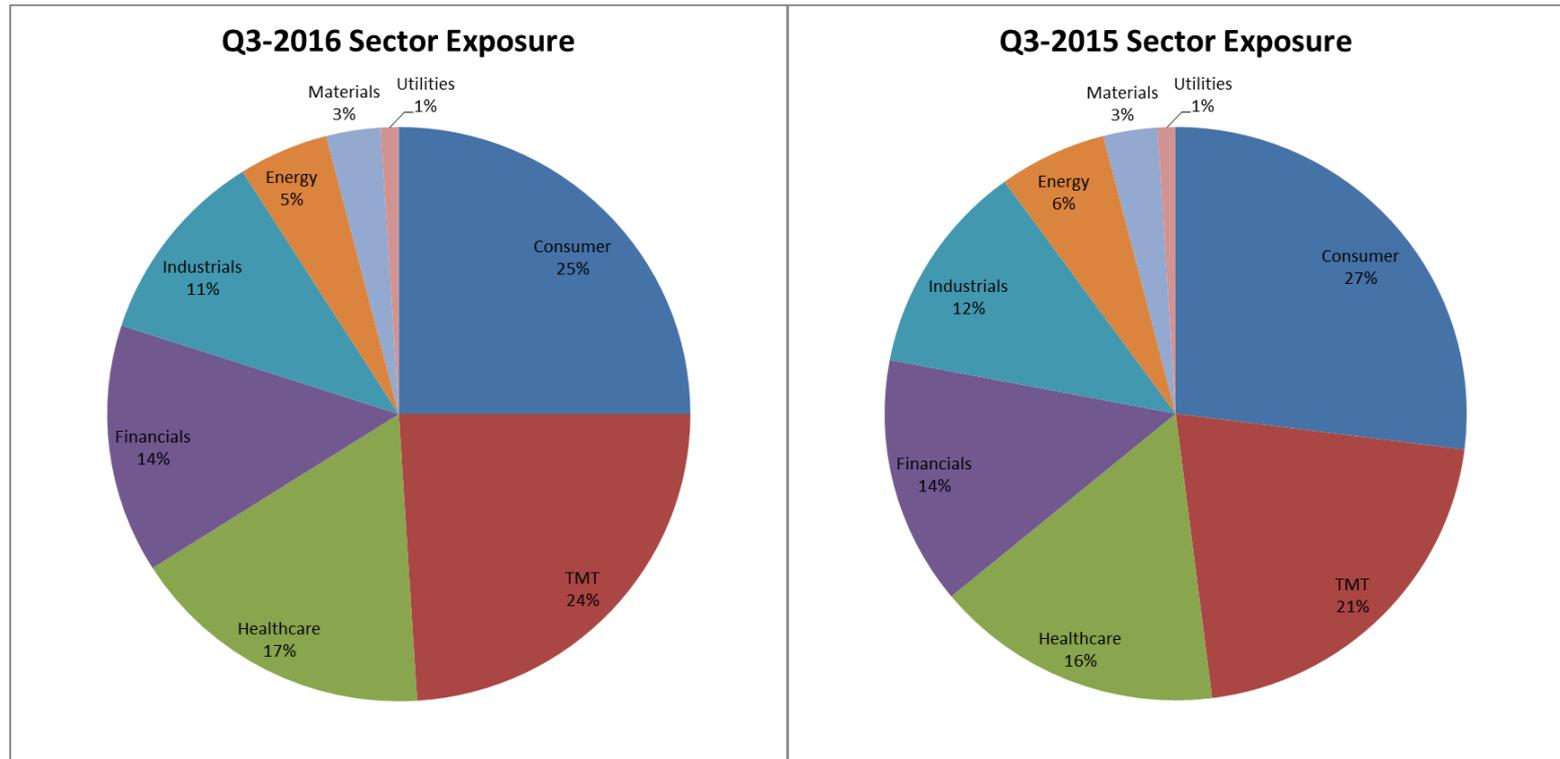
**Geographic Diversification - Portfolio Company HQ**



# OPERF Private Equity Program Portfolio Update – Portfolio Construction

With respect to sector diversification, the OPERF portfolio remains highly diversified with industry exposures broadly mapping that of the public markets

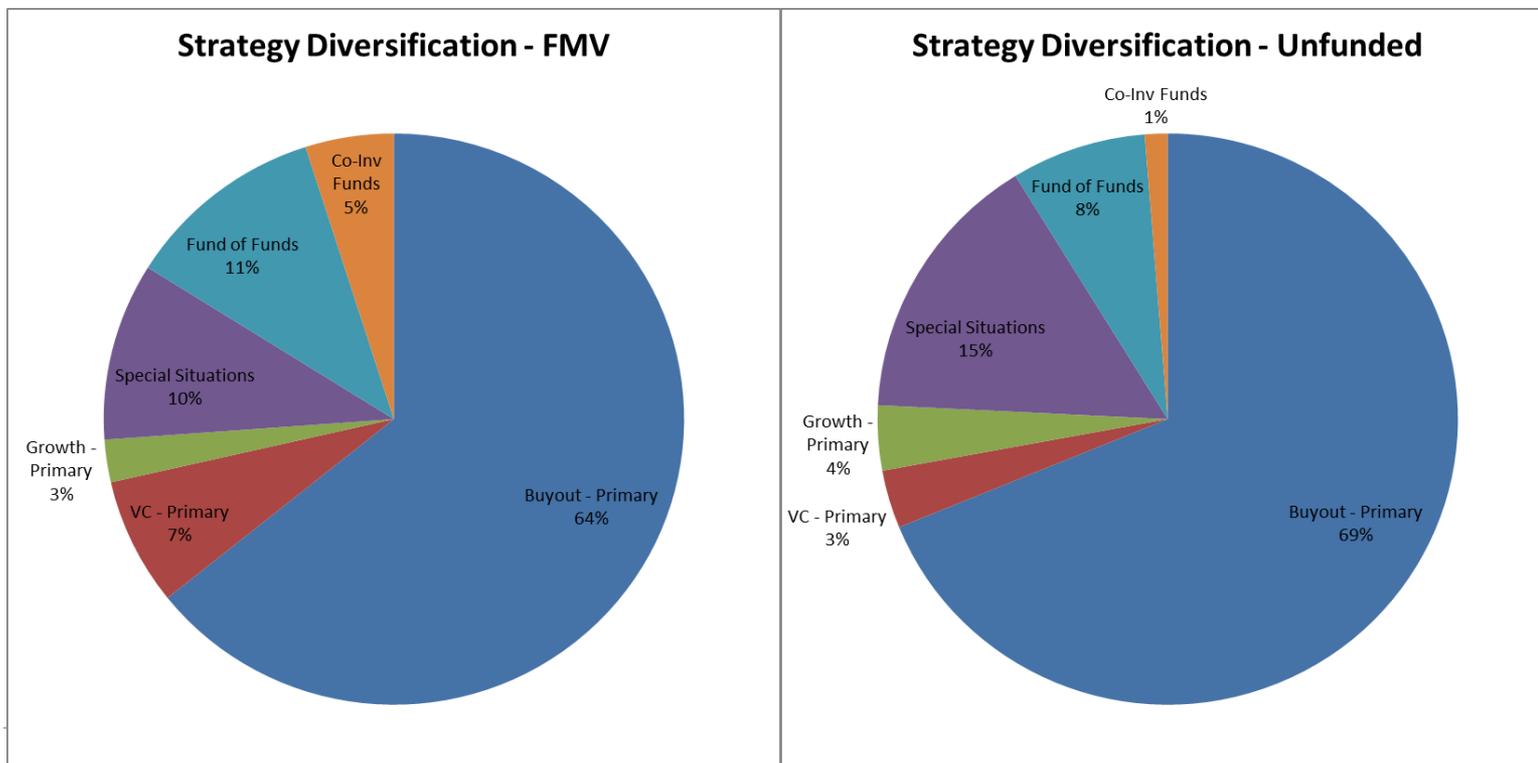
- ▶ Relative to the Russell 3000 Index, the OPERF program is overweight consumer, healthcare and TMT but underweight energy and financials/real estate
- ▶ The chart on the bottom left presents with program's sector exposure measured at the portfolio company level as of September 30, 2016. For comparison, the chart on the right presents the same sector snapshot from 12 months earlier
  - ▶ As the charts depict, the portfolio modestly increased the allocation to both technology, media & telecom (TMT) as well as healthcare over the past year at the expense of consumer, industrials, and energy



# OPERF Private Equity Program Portfolio Update – Portfolio Construction

The program continues to be heavily buyout oriented from a strategy standpoint, and it will become increasingly so over time

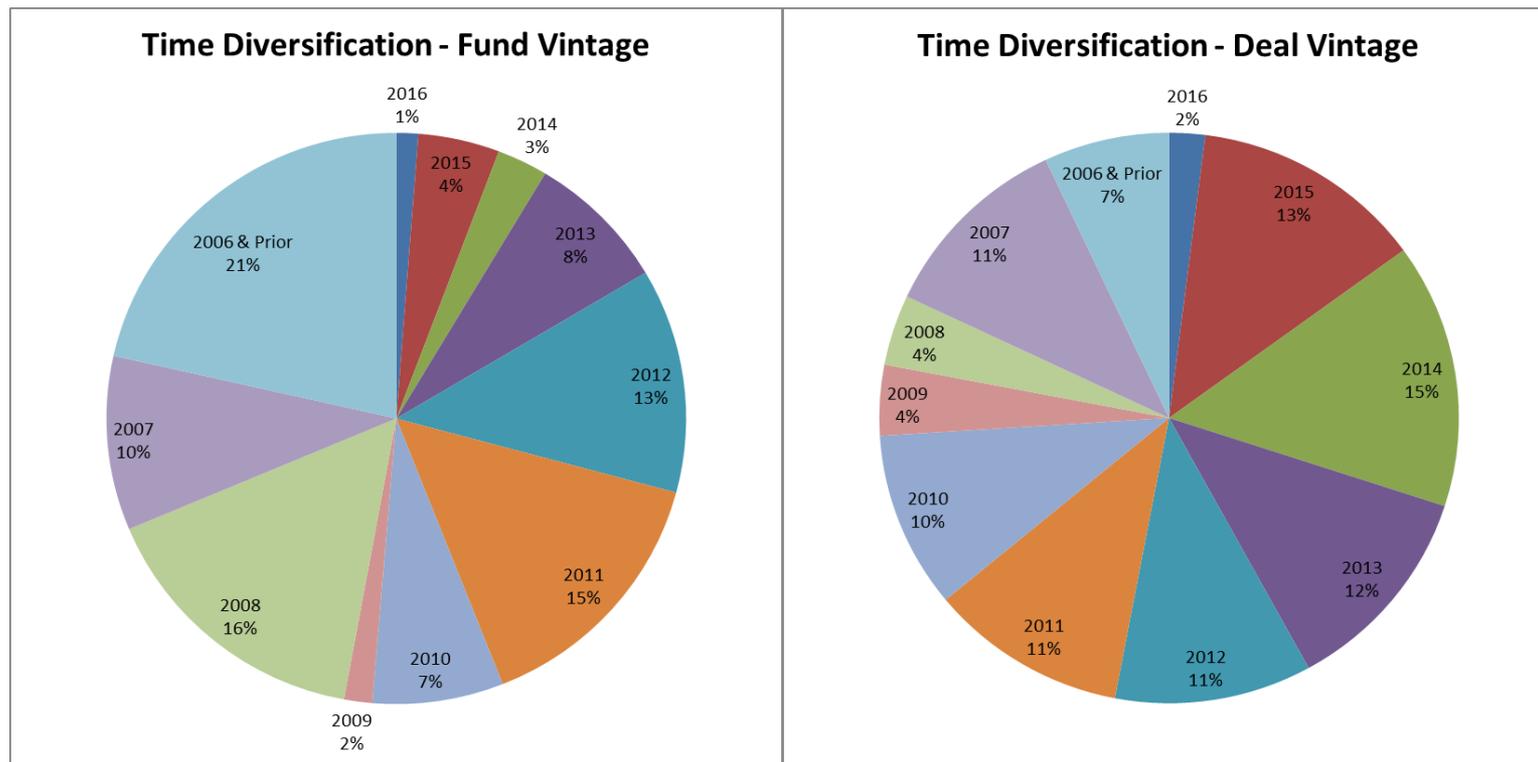
- ▶ The chart to the bottom left plots the portfolio's diversification by strategy based on fair market value at June 30, 2016
  - ▶ As the chart reflects, 64% of the program's fair market value is currently invested in Buyout funds on a primary basis. However, all of the Co-Investment Fund allocation and a significant element of both the Fund of Funds and Special Situations allocations represent buyout exposures as well
- ▶ The chart to the right reflects strategy diversification based on uncalled commitments. This is an indication of where the portfolio is expected to move over time
  - ▶ This chart reveals that the allocations to Co-Investment Funds, Fund of Funds and Venture Capital are expected to decline over time
  - ▶ The projected increase in Special Situations and Growth Equity represent material commitments made during 2015 and 2016



# OPERF Private Equity Program Portfolio Update – Portfolio Construction

The OPERF program continues to work through above average exposure to long-dated fund commitments

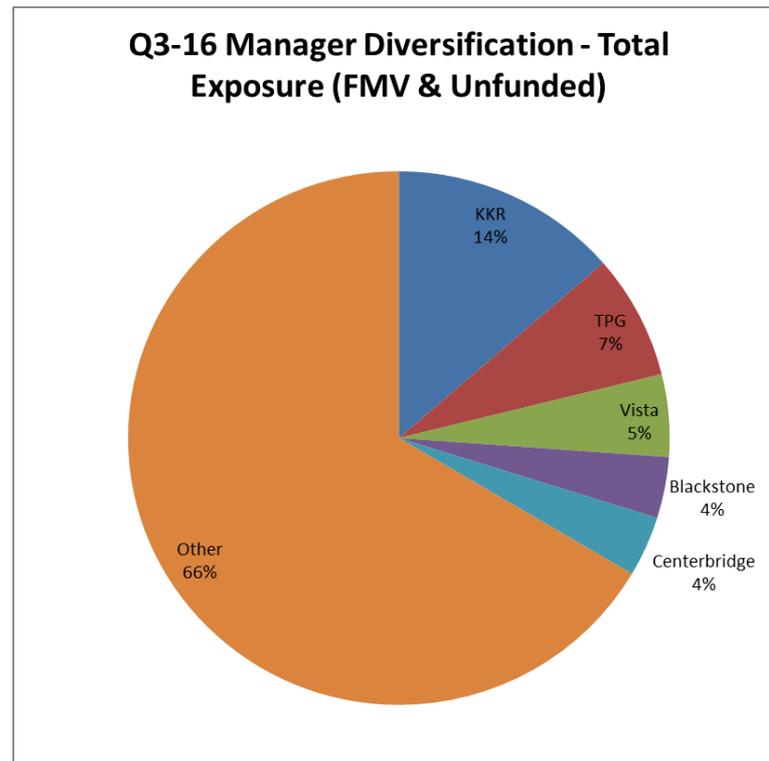
- ▶ The chart to the bottom left shows the program's exposure by vintage year as of September 30, 2016. As the chart reflects, nearly half of the program's current exposure comes from fund commitments that are at least seven years old
  - ▶ While the overexposure to long-dated commitments remains a drag on performance, these exposures are winding down as time passes. Exposure to vintages at least seven years old is down from nearly 60% at this point in 2015
- ▶ The chart to the bottom right looks at time diversification at the portfolio company level plotting allocation exposure by deal inception as of September 30, 2016
  - ▶ This chart reflects that roughly 40% of the program's exposure is in deals that are at or beyond the target five-year hold period and nearly 30% of portfolio company exposure has been held seven years or more



# OPERF Private Equity Program Portfolio Update – Portfolio Construction

While OPERF has made commitments to a large universe of General Partners since inception, the program continues to be fairly concentrated from a manager diversification standpoint

- ▶ The chart below depicts the program's top five manager exposures as of September 30, 2016. As the chart reflects, a third of the programs current exposure (Fair Market Value + Unfunded Commitments) is attributable to only five relationships. The top ten relationships account for close to half of total exposure
- ▶ As previously discussed, the range of commitment size has been significantly narrowed in recent vintages in an effort to better balance the portfolio. While it will take time for this change to impact the program's exposures, the result will be greater manager diversification

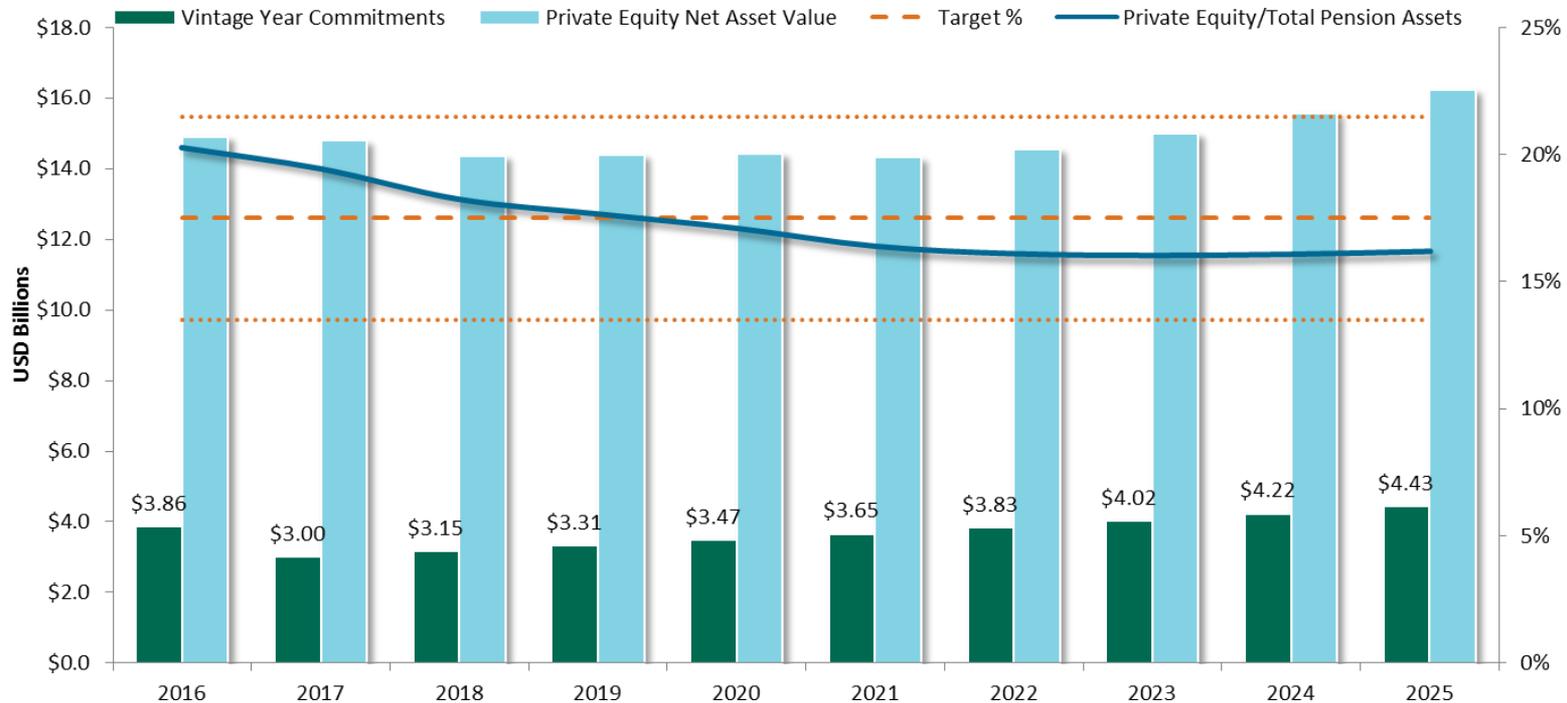


# 2017 Private Equity Plan – Investment Pacing

Per TorreyCove’s pacing study, the recommendation is to commit \$2.5-3.5 billion per annum to new investments in each of the 2017-2019 vintages

- ▶ This recommendation mirrors the recommendation made last year and represents a continuation of the smoothed pacing model agreed to at that time
- ▶ Per the existing plan, OST Staff and TorreyCove would anticipate recommending 10-15 commitments of \$100-500 million (\$250-300 million average commitment)
- ▶ The output of the horizon model used to create this forward pacing recommendation is presented in the chart below. Further detail on this exercise is available in TorreyCove’s review of the program (**Appendix B**)

As already discussed, the program continues to have a large exposure to long-dated commitments which makes the cash flow forecasts that drive this model challenging. However, maintaining a steady pace over the next several years feels like the best course of action. Commitments are expected to begin scaling again after 2019 when that mature exposure is sufficiently realized



# 2017 Private Equity Plan – Initiatives

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## 2017 OST Private Equity Staff Priorities

### 1. **\$2.5-3.5 billion of new fund commitments**

- ▶ 10-15 commitments with a continued focus on an average commitment size of \$250-300 million

### 2. **Exploit opportunities to reduce fee drag**

- ▶ Continue to focus on commitment size and first closer management fee discount opportunities
- ▶ Further focus on negotiated, non-discretionary side car structures as an efficient way to average down carry load
- ▶ Exploration of co-investment implementation models and strategic relationships as an avenue to fee reduction. This is a longer-term, collaborative initiative pursued across the Alternatives Program

### 3. **Continue to pursue enhancements to due diligence and monitoring processes**

- ▶ Build on the due diligence process enhancements achieved in 2016 by adding incremental qualitative and quantitative screens
- ▶ Implement a more regimented and documented monitoring process and explore IT solutions to enhance monitoring capacity

### 4. **Continue to explore options to reduce the administrative burden of monitoring the Program's long-dated fund portfolio**

- ▶ Implement a new framework to cover this segment of the portfolio with greater involvement on the part of TorreyCove

### 5. **Private Equity Team Capacity**

- ▶ Recruit Investment Officer to back fill vacant position
- ▶ Greater integration and utilization of new Alternative Program Investment Analysts on private equity projects



# 2017 PE Annual Plan Appendix A - 2016 PE Market Review

February 2017

# 2016 Private Equity Market Review - Agenda

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- ▶ Executive Summary – Page 3
- ▶ Investment Environment – Page 4 - 26
  - ▶ M&A Environment – Page 5 - 7
  - ▶ Corporate Leveraged Finance Environment – Page 8 - 9
  - ▶ Global PE & VC Returns – Page 10 - 12
  - ▶ U.S. Private Equity Update – Page 13 - 20
  - ▶ U.S. Venture Capital Update – Page 21 - 23
  - ▶ Europe Private Equity Update – Page 24 - 26

# 2016 Private Equity Market Review - Executive Summary

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## **THE MARKET WAS MOSTLY FLAT FROM A VOLUME STANDPOINT IN 2016 BUT PRICES SET NEW HIGHS**

- ▶ **Mergers & Acquisitions** – closed, developed-market transaction volume is up 10% from a value perspective but down 25% from a deal count perspective
  - ▶ M&A transactions have skewed larger with 83% of volume YTD attributable to transactions with EVs at or above \$1 billion
  - ▶ Prices are high but leverage multiples have moderated somewhat
  - ▶ Private Equity's share of M&A volume is above 30% for the first time since 2008
- ▶ **Corporate Leveraged Finance** – new issue volumes are effectively flat versus 2015
  - ▶ U.S. new issue volume is down 13% for HY, but up 13% for loans
  - ▶ Europe new issue volume is down 15% for HY, but up 20% for loans
- ▶ **Global PE & VC Returns** – as of Q2-16, the asset class has failed to exceed the public markets by at least 300 bps per annum for the past 15 years
  - ▶ Returns for all funds in the ILPA pooled average for the year ending 6/30/16 were 2.4% (IRR). The three-year annualized return stands at 11.6%
- ▶ **U.S. Private Equity** – 2016 has been a “hot” year from a fundraising and purchase price standpoint
  - ▶ Established managers are easily raising capital, and 90% of all funds closed in 2016 met or exceeded target
  - ▶ From an investment perspective, the deal count is off by 18%, but aggregate transaction value is on pace to match 2015. The market has skewed to larger deals and to expensive sectors (software) leading to record purchase prices. Leverage levels have not kept pace which has resulted in median equity contributions above 50%
  - ▶ The exit environment remains strong, but 2016 activity will likely not match the record volumes seen in 2015
- ▶ **U.S. Venture Capital** – 2016 looks to be an up year for fundraising, but a flat year from an investment standpoint
  - ▶ Total financing value is on par with 2015, but activity has skewed to fewer, later, and larger rounds
  - ▶ Exit volumes are tracking 2015, but the IPO market will likely see its lowest level of activity since 2009
- ▶ **Europe Private Equity** – 2016 is shaping up to be a reasonably flat year versus 2015
  - ▶ Fundraising is on pace with the past several years and fund sizes are creeping up, but there are fewer and fewer General Partners bringing sizable Euro-denominated funds to market
  - ▶ New investment volumes are down YTD in 2016, and U.S.-based General Partners continue to control a sizeable share of the market (roughly 20%)
  - ▶ Total exit transaction volumes remain reasonably strong with sales to strategics taking a larger share of 2016 realization activity

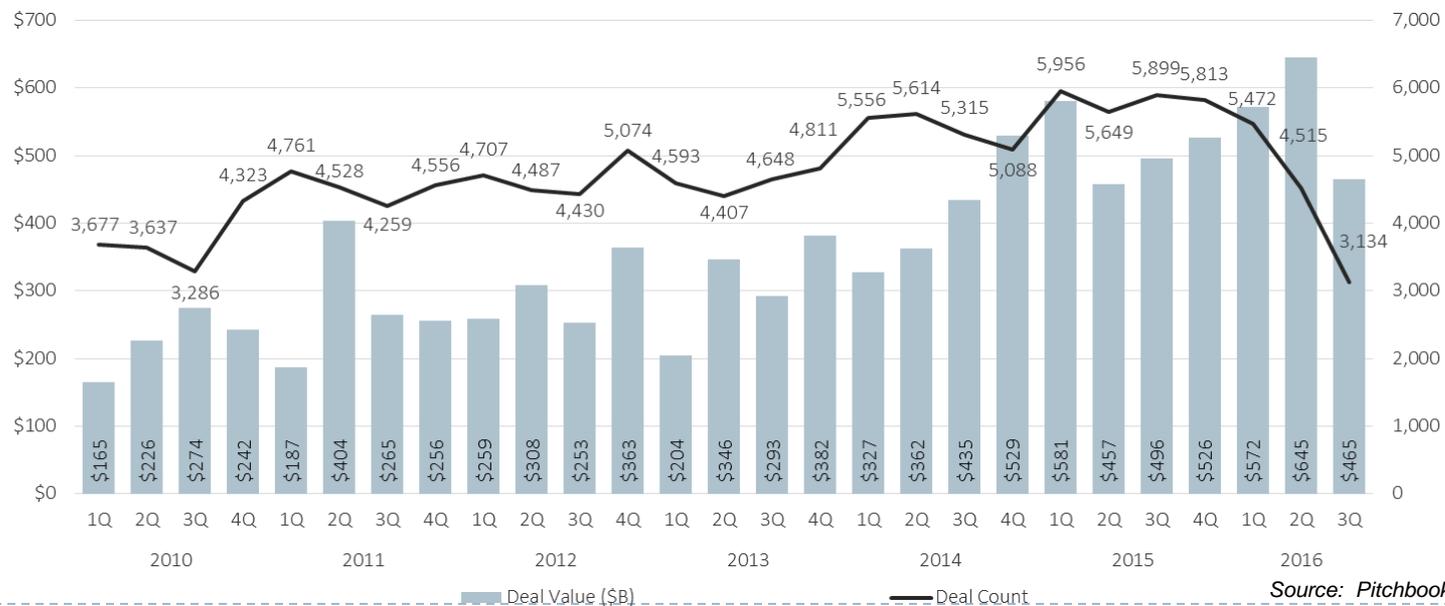
# 2016 Private Equity Market Review

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## ▶ Investment Environment

# M&A Environment – Developed Markets Volumes

- ▶ Through the first three quarters of 2016, Pitchbook recorded more than 13k closed M&A transactions in North America & Europe with an aggregate value of \$1.6 trillion
  - ▶ M&A volumes through 9/30/16 are 10% ahead of where they were through the first three quarters of 2015 with respect to aggregate value, but the number of transactions is roughly 25% below where it was at the same point last year
    - ▶ M&A volumes have skewed toward larger deals with 83% of aggregate value attributable deals with enterprise values of \$1bn or more. This compares to 75% in 2015 and 68% in 2014
    - ▶ The median transaction size for the first three quarters of 2016 was \$132m, \$85m, and \$210m, respectively. From 2010 – 2015, median transaction size stayed in a range of \$22 – 42 million
    - ▶ In 3Q 2016, the number of deals closed was lower than at any point since 2010
  - ▶ The chart below presents quarterly M&A volumes (closed deals in North America & Europe) since 2010 using the Pitchbook data set



Source: Pitchbook

# M&A Environment – Transaction Multiples

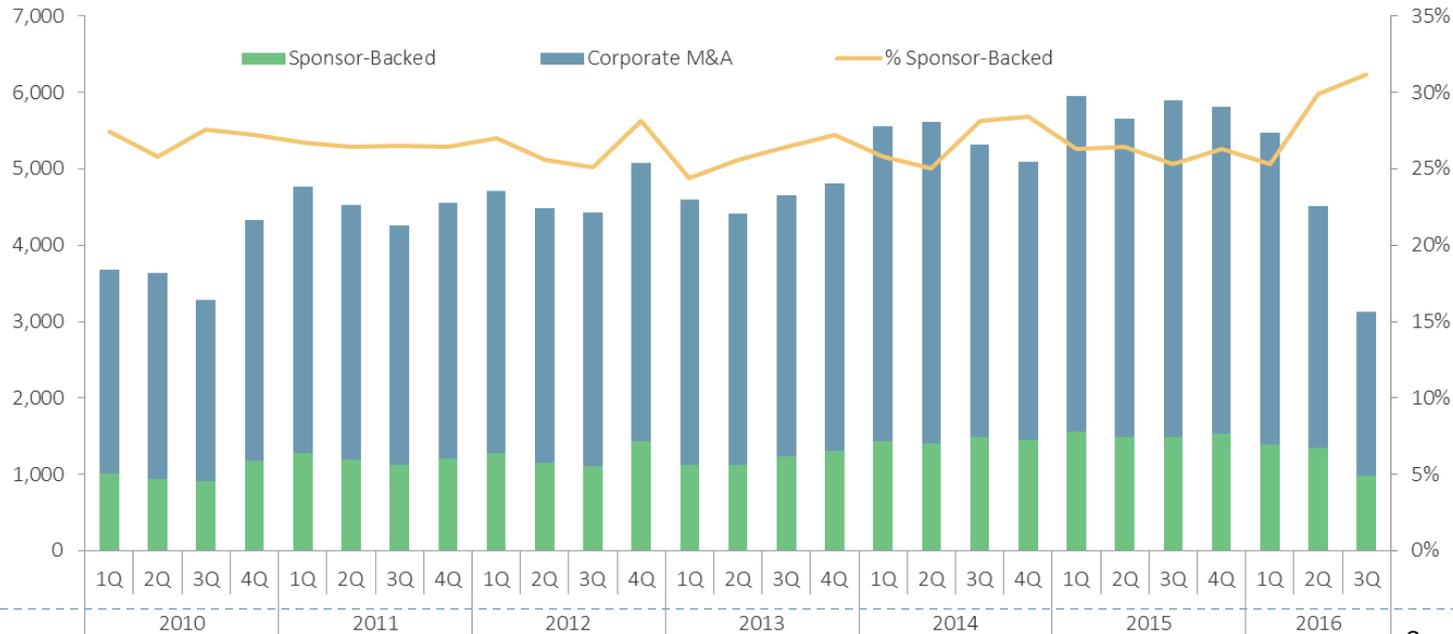
- ▶ Through the first three quarters of 2016, average M&A transaction multiples remained above 9x EV/EBITDA and peaked at 10.0x in the third quarter
  - ▶ This reflects both a full pricing environment for equities as well as a mix shift in M&A transactions to larger deals
- ▶ Conversely, average debt multiples for the first three quarters of 2016 were below 5.0x debt/EBITDA
  - ▶ The equity component of the average deal financing increased to 53% of the capital structure in both Q2 and Q3. Equity financing had been in a range of 38%-50% from 2010-2015
  - ▶ The chart below presents quarterly M&A multiples since 2010 using the Pitchbook data set



Source: Pitchbook

# M&A Environment – Private Equity Market Share

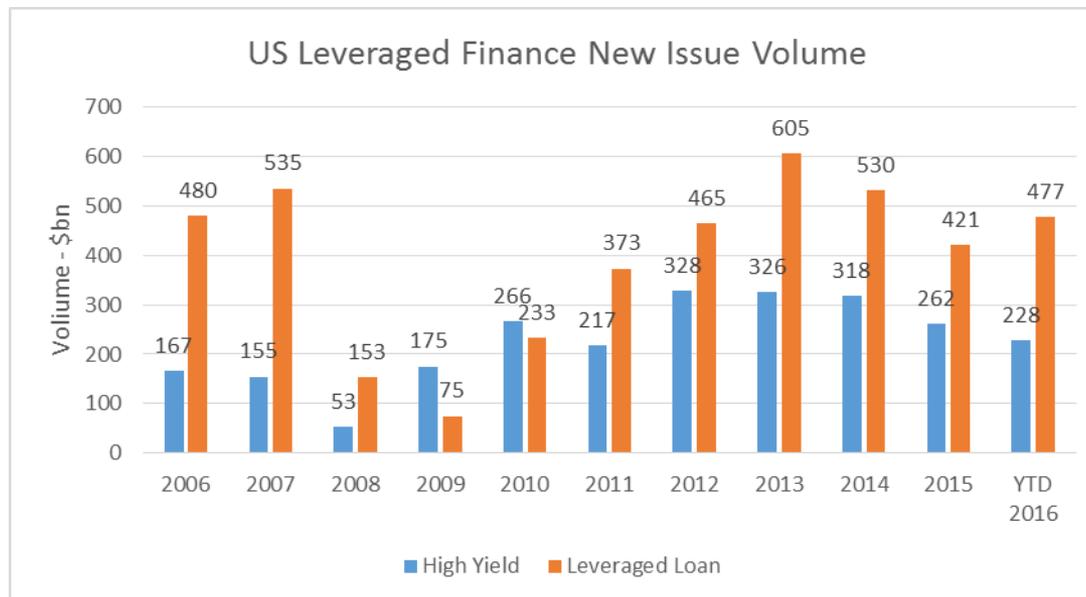
- ▶ While the number of M&A transactions decreased in the second and third quarter of 2016, private equity's shares of transaction volumes increased to more than 30% for the first time since 2007-2008
  - ▶ PE's share of M&A had been roughly 25% in 2015
  - ▶ PE volumes declined roughly 19% during the first three quarters of the year which compares to 27% for corporate M&A volumes
  - ▶ Add-on acquisitions by PE backed platforms represented 56% of sponsor volumes in the first three quarters of 2016. Add-ons have represented more than half of sponsor volumes in each year since 2011
  - ▶ The chart below presents PE's share of quarterly M&A activity as measured by deal count since 2010 using the Pitchbook data set



Source: Pitchbook

# Corporate Leveraged Finance Environment – U.S.

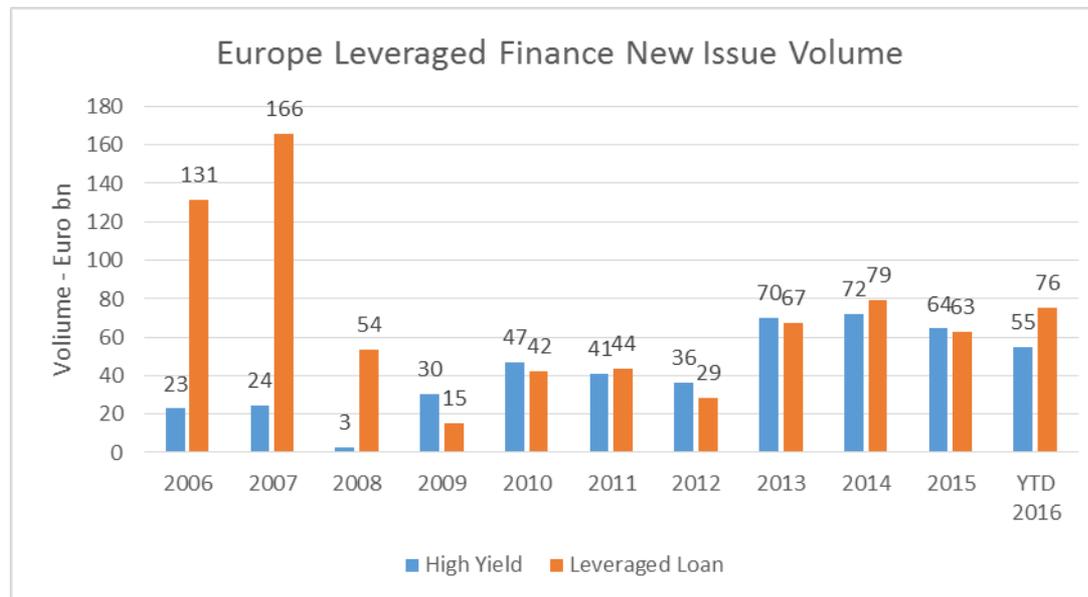
- ▶ Through 12/16/2016, total new issue volumes in the U.S. were effectively flat relative to 2015
  - ▶ High yield bond volumes are down 13% while leveraged loan volumes are up 13%
  - ▶ Volumes remain below the peak issuance levels seen in 2013 and 2014
  - ▶ The market was volatile in 2016 with spreads widening in Q1 but finishing the year close to where they started
  - ▶ The chart below presents US leveraged finance new issue volume year to date through 12/16/16



Source: UBS, IFR & S&P

# Corporate Leveraged Finance Environment – Europe

- ▶ Through 12/9/2016, total new issue volumes in the Europe were also effectively flat relative to 2015
  - ▶ High yield bond volumes are down 15% while leveraged loan volumes are up 20%
  - ▶ As in the U.S., the European market was volatile. HY spreads widened in Q1 and again in the summer, but overall spreads settled close to where they were in 2015
  - ▶ The chart below presents Europe leveraged finance new issue volume year to date through 12/9/16



# Global PE & VC Returns

- ▶ The chart below presents trailing returns (IRRs) for the ILPA Private Markets Benchmark as of June 30, 2016
  - ▶ The year ending 6/30/16 was weak from a return standpoint with the “All Funds Index” generating an IRR of 2.4%
    - ▶ The best and worst places to have exposure over this period were Europe PE & VC (8.8%) and Natural Resources (-11.4%), respectively
  - ▶ Annual returns for the three-year period ending 6/30/16 are more encouraging with the “All Funds Index” generating an IRR of 11.6%
    - ▶ The best and worst places to have exposure over the past three years were Asia PE & VC (17.6%) and Natural Resources (-4.8%), respectively

## All Funds: Fund Index Summary: Horizon Pooled Return Net to Limited Partners

Index	1-Quarter	YTD	1-Year	3-Year	5-Year	10-Year	15-Year	20-Year	25-Year	30-Year
<b>ILPA Private Markets Benchmark - All Funds Index<sup>1</sup></b>	<b>2.44</b>	<b>2.82</b>	<b>2.43</b>	<b>11.59</b>	<b>10.06</b>	<b>9.97</b>	<b>10.30</b>	<b>12.81</b>	<b>13.76</b>	<b>13.34</b>
<i>ILPA Private Markets Benchmark - U.S./Canada Private Equity Index<sup>1</sup></i>	4.02	4.24	3.04	11.89	11.61	10.64	11.25	12.46	13.23	12.99
<i>ILPA Private Markets Benchmark - U.S./Canada Venture Capital Index<sup>1</sup></i>	0.71	-3.02	-1.84	17.60	13.14	10.25	5.36	25.00	26.00	18.79
<i>ILPA Private Markets Benchmark - Europe Private Equity &amp; Venture Capital Index<sup>1</sup></i>	1.26	6.34	8.84	10.28	7.02	9.01	14.37	14.52	14.40	—
<i>ILPA Private Markets Benchmark - Asia/Pacific Private Equity &amp; Venture Capital Index<sup>1</sup></i>	1.15	1.08	3.28	17.61	11.55	12.82	12.30	11.67	11.54	—
<i>ILPA Private Markets Benchmark - Distressed Securities Index<sup>1</sup></i>	2.36	3.46	1.35	7.40	8.86	9.57	10.84	11.02	11.17	—
<i>ILPA Private Markets Benchmark - Natural Resources Index<sup>1,2</sup></i>	7.00	4.95	-11.43	-4.80	-0.37	4.65	8.55	8.93	8.88	—
<i>ILPA Private Markets Benchmark - Fund of Funds Index<sup>1</sup></i>	0.98	0.23	2.39	13.29	9.65	9.00	8.27	8.93	8.98	—
<i>ILPA Private Markets Benchmark - Secondary Funds<sup>1</sup></i>	-0.50	-0.28	0.13	9.94	9.08	9.81	11.12	11.60	12.01	—

Source: ILPA

# Global PE & VC Returns

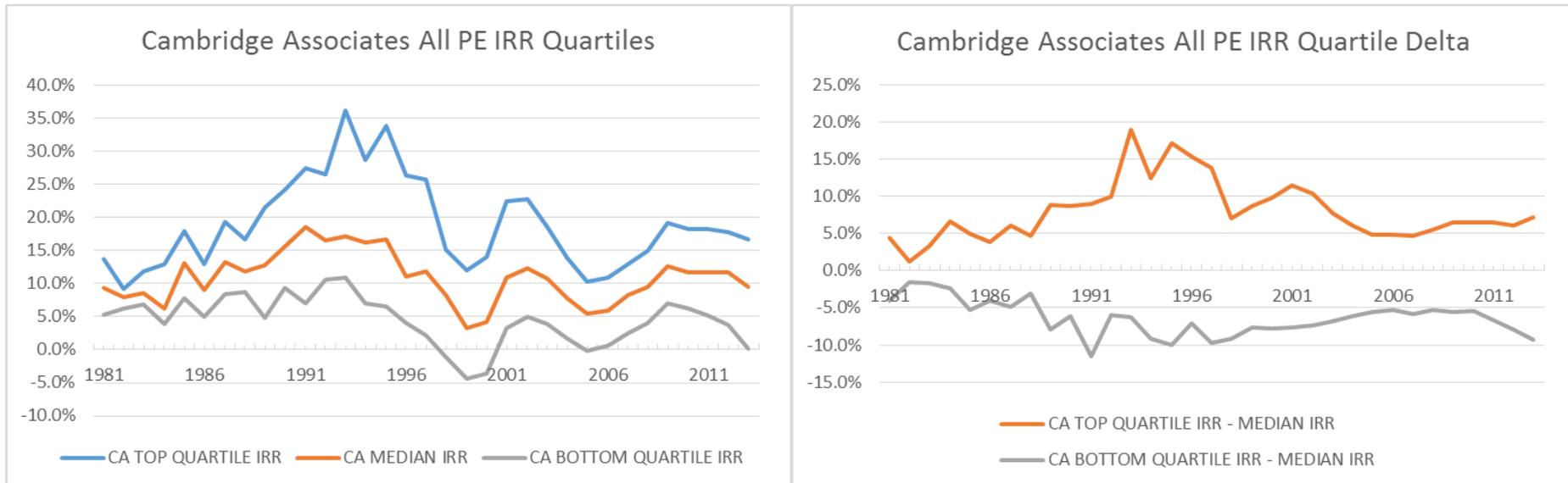
- ▶ The chart below presents trailing returns (IRRs) for the ILPA Private Markets Benchmark All Funds Pooled Return compared to a modified public market equivalent as of June 30, 2016
  - ▶ As the chart reflects, the private equity industry as a whole has failed to deliver the target return premium to the public markets of at least 300 bps over the past 15 years
    - ▶ Returns trail significantly over the 5-year period (-248 bps per annum versus the S&P 500 and -202 bps per annum versus the Russell 3000)
    - ▶ For the year ending 6/30/16, private equity trailed the S&P 500 by 132 bps but beat the Russell 3000 by 56 bps

All Funds: Fund Index Summary: Horizon Pooled Return Compared to CA Modified Public Market Equivalent (mPME)  
Net to Limited Partners

ILPA Index	1-Year	3-Year	5-Year	10-Year	15-Year	20-Year	25-Year	30-Year
ILPA Private Markets Benchmark - All Funds Index <sup>1</sup>	2.43	11.59	10.06	9.97	10.30	12.81	13.76	13.34
mPME Analysis <sup>2</sup>								
S&P 500 Index	3.75	12.34	12.54	8.56	7.76	8.05	8.50	8.63
Value-Add (bps)	-132	-75	-248	141	254	476	526	472
Russell 3000® Index	1.88	11.89	12.08	8.59	7.97	8.20	8.67	8.75
Value-Add (bps)	56	-30	-202	138	233	461	509	459
MSCI World Index (net)	-2.93	7.63	7.03	5.25	5.75	5.62	5.88	5.89
Value-Add (bps)	536	396	303	471	455	719	788	745
MSCI Europe Index (net)	-11.24	2.81	1.58	2.04	3.95	4.00	4.36	4.44
Value-Add (bps)	1367	878	848	793	635	881	939	890

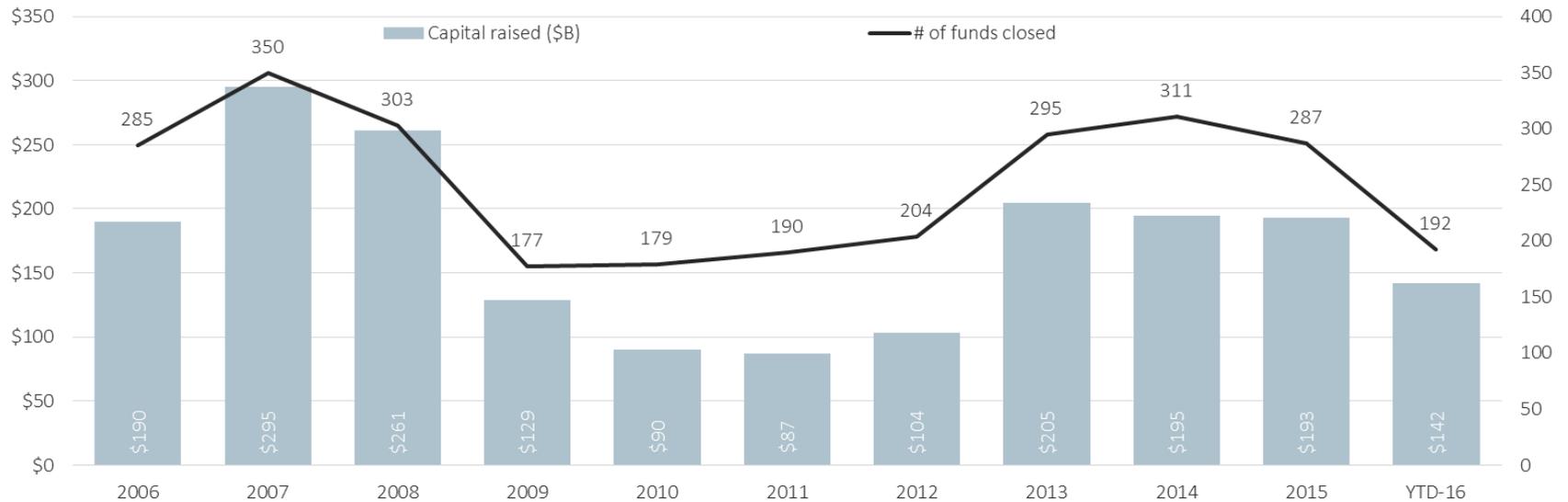
# Global PE & VC Returns

- ▶ The charts below present the span of returns from the top quartile to the lower quartile for each vintage year from 1981-2013 (as of Q2-16)
  - ▶ The chart on the left illustrates material return dispersion between top quartile, median and bottom quartile funds in private equity. This result supports the emphasis that limited partners apply to fund/manager selection
  - ▶ The chart on the right isolates the spread of outcomes around the median. As seen, this dispersion (or spread) is not static over time, but has been reasonably tight by historical standards for most of the past decade



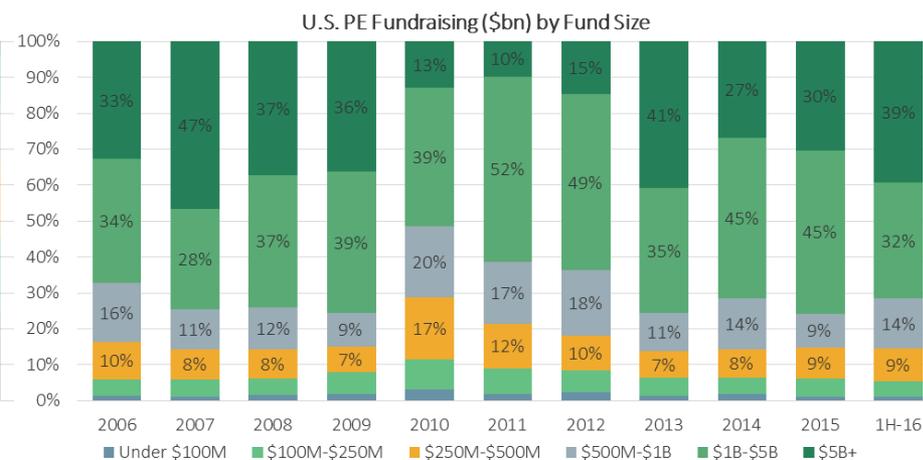
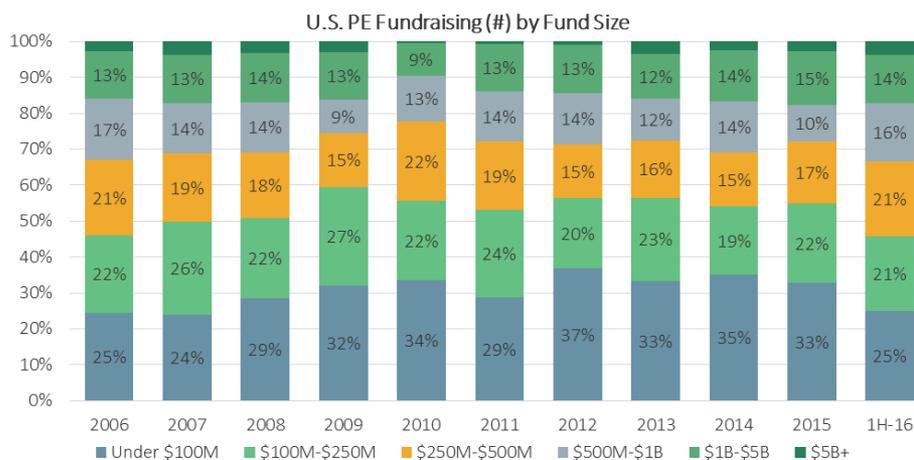
# U.S. Private Equity Update - Fundraising

- ▶ Through the first three quarters of 2016, \$142 billion had been raised across 192 U.S. private equity funds
  - ▶ This compares to \$130 billion across 215 funds during the first three quarter of 2015
  - ▶ The median fund size has also increased YTD 2016 to \$225 million versus \$173 million in 2015. This increase is the first time that median fund size has exceeded \$200 million since 2010's \$225 million median fund size
  - ▶ The chart below presents U.S. fundraising activity for private equity for each vintage year since 2006 using the Pitchbook data set



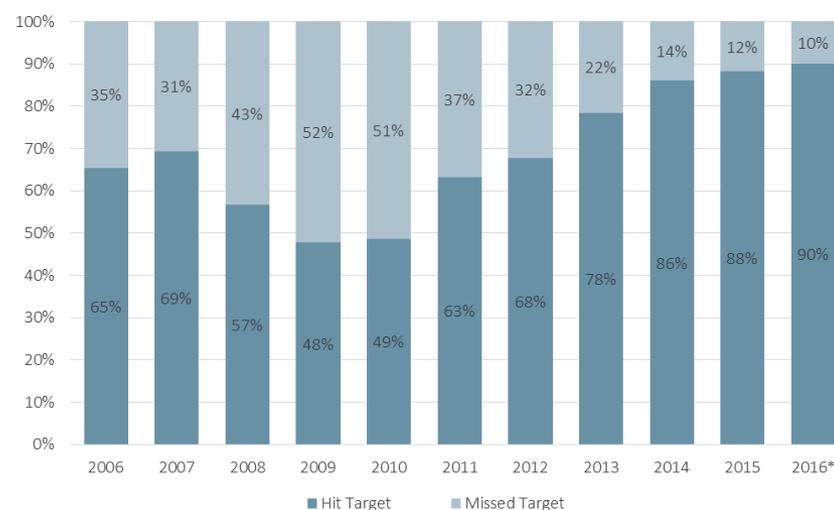
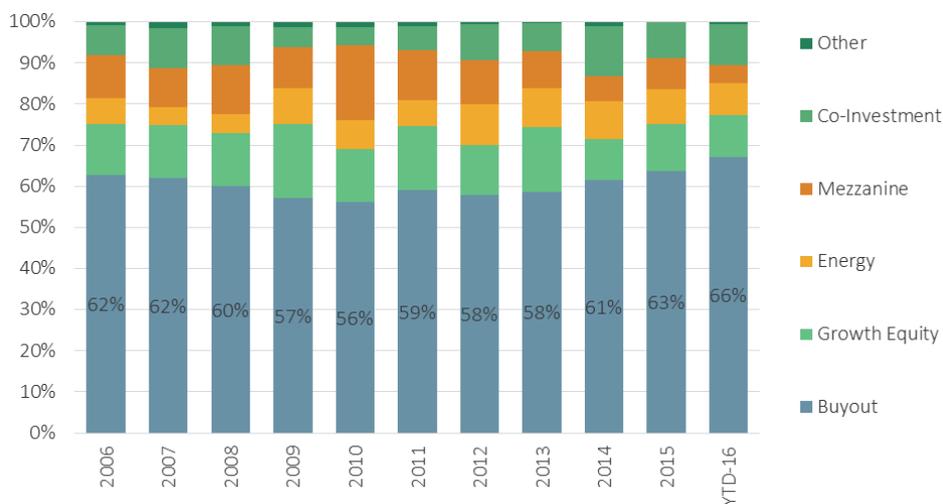
# U.S. Private Equity Update - Fundraising

- ▶ While the vast majority of funds raised continue to have less than \$500 million of committed capital, a significant majority of the capital raised continues to be allocated to funds with more than \$1 billion of committed capital
  - ▶ In the first half of 2016, two-thirds of the funds raised had commitments of \$500 million or less while 72% of capital raised was committed to funds with at least \$1 billion of commitments
  - ▶ Funds with commitments of \$5 billion or more have dominated in the first half of 2016. While those funds represent only 4% of the funds raised by count, they account for 39% of all capital committed
    - ▶ Noteworthy funds include Advent GPE VIII (\$13bn), TPG Partners VIII (\$10.5bn), Green Equity Investors VIII (\$9.6bn) and Apax IX (\$9bn)
  - ▶ The charts below presents the fund size mix of U.S. PE fundraising for each vintage year since 2006 using the Pitchbook data set



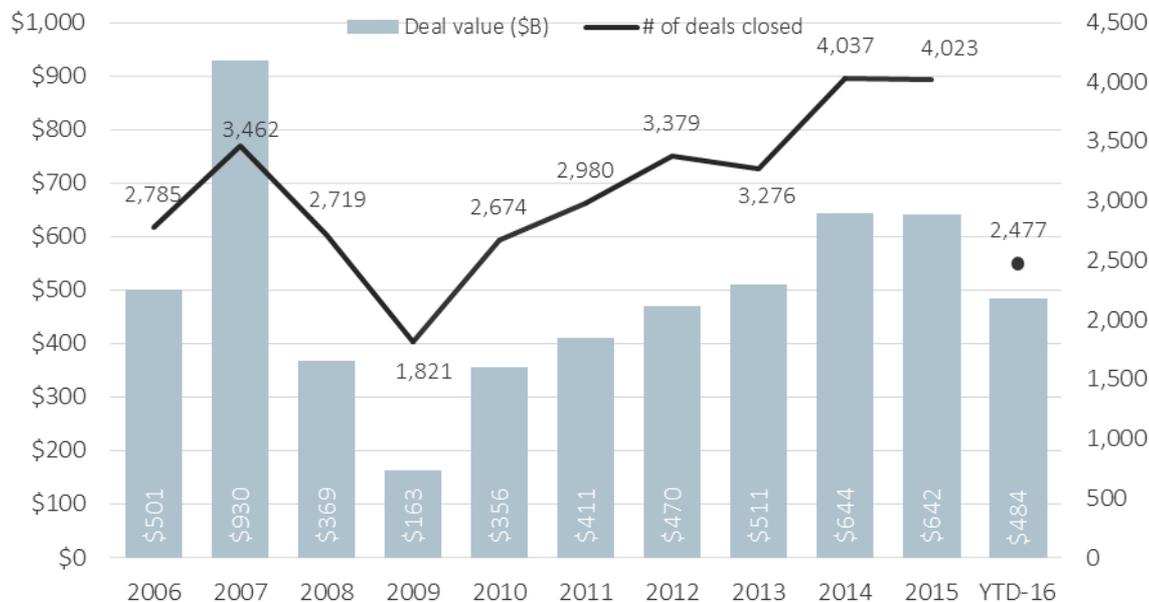
# U.S. Private Equity Update - Fundraising

- ▶ The chart on the lower left presents the strategy mix for U.S. PE fundraising for each vintage year since 2006 using the Pitchbook data set
  - ▶ As the chart depicts, two thirds of the funds raised during the first three quarters of 2016 were buyout funds. Growth equity and energy fundraising remains relatively stable, but mezzanine continues to be a challenging strategy
- ▶ The chart on the lower right presents the percentage of funds raised for each vintage year since 2006 that either hit or exceeded their fundraising target using the Pitchbook data set
  - ▶ This chart speaks to how hot the fundraising market has been in recent years. For the first half of 2016, only 10% of funds failed to reach their target. The traction that funds have gotten in the market since 2014 is unprecedented
  - ▶ These observations support the conclusion that demand for private equity allocations continues to exceed supply. Per Collier Capital's recently published Winter Barometer, 39% of Limited Partners surveyed plan to increase their fund's allocation to the asset class while only 8% anticipate decreasing their fund's allocation



# U.S. Private Equity Update – Deployment Activity

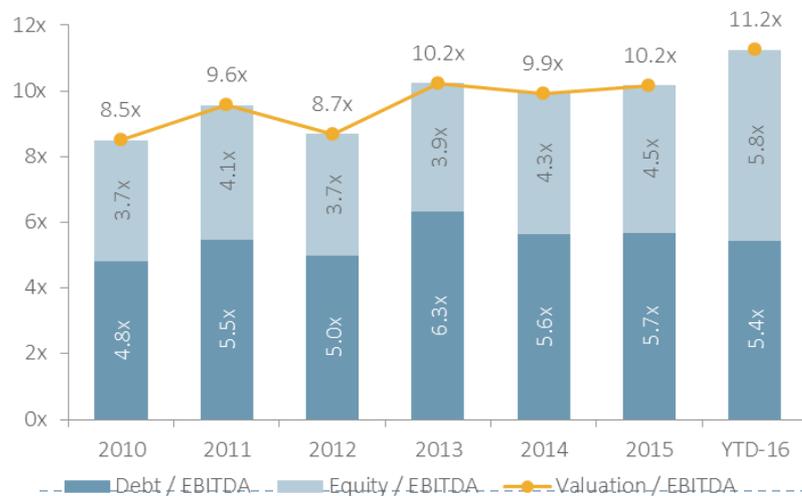
- ▶ For the first three quarters of 2016, U.S. private equity partnerships closed 2,477 transactions with an aggregate deal value of \$484 billion
  - ▶ These results represent an 18% decline in the number of deals closed when compared to the first nine months of 2015. However, the aggregate transaction value for the first three quarters of 2016 effectively matches the value for the comparable period in 2015
  - ▶ Total deal volumes by value appear to be on pace to match levels seen in 2014 and 2015. However, the transaction count is trending toward levels last seen in 2012 and 2013 as deal sizes have increased
  - ▶ The chart below presents U.S. private equity investment activity for each vintage year since 2006 using the Pitchbook data set



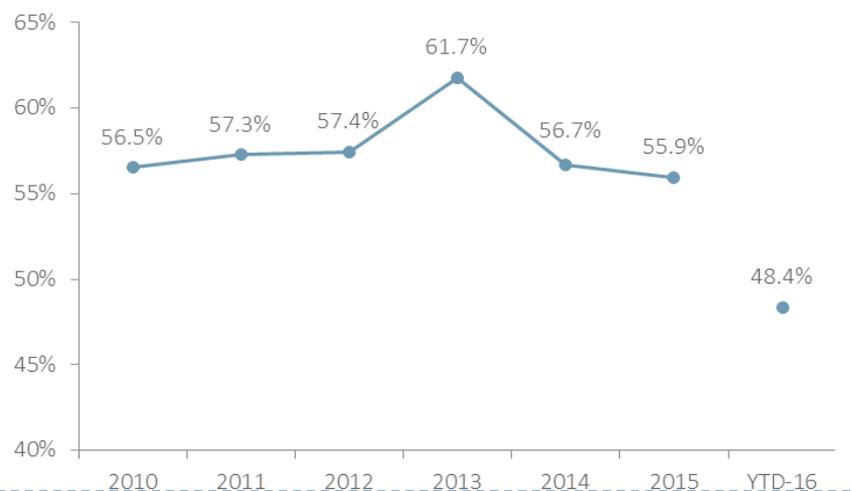
# U.S. Private Equity Update – Deployment Activity

- ▶ For the first three quarters of 2016, pricing for U.S. private equity transactions reached an all time high of 11.2x EV/EBITDA
  - ▶ The chart to the right presents median multiples for U.S. private equity transactions since 2010 using the Pitchbook data set. As the chart reflects, prices continued to move higher in the first three quarters of 2016 but debt multiples have not kept pace
- ▶ For the first three quarters of 2016, the percentage of debt used to capitalize U.S. private equity transactions reached a recent low of 48% of enterprise value
  - ▶ The chart to the right presents the median percent of the capital structure debt represented in U.S. private equity transactions since 2010 using the Pitchbook data set. As the chart depicts, equity contributions have increased materially
- ▶ Transactions consummated at higher prices and financed with more equity will require higher levels of earnings growth to generate traditional private equity returns

Median EBITDA multiples for U.S. PE buyouts

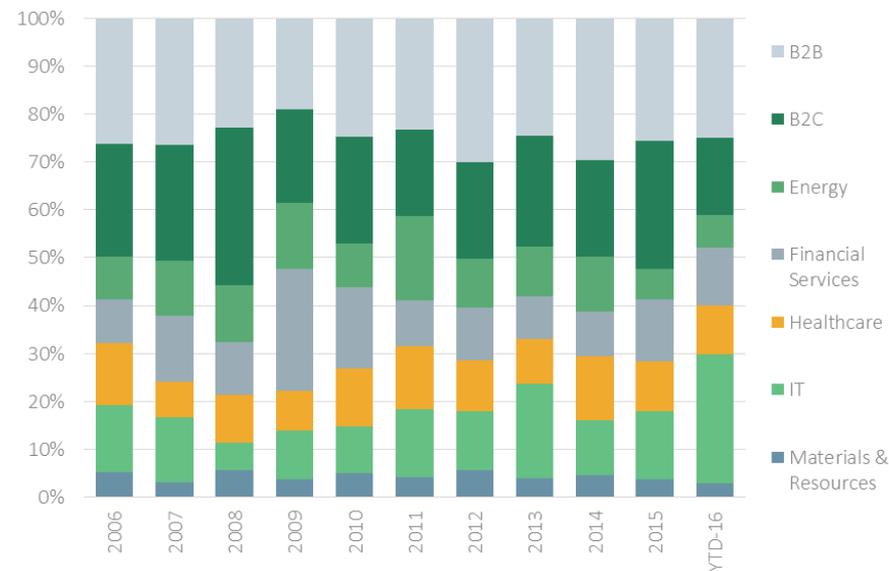
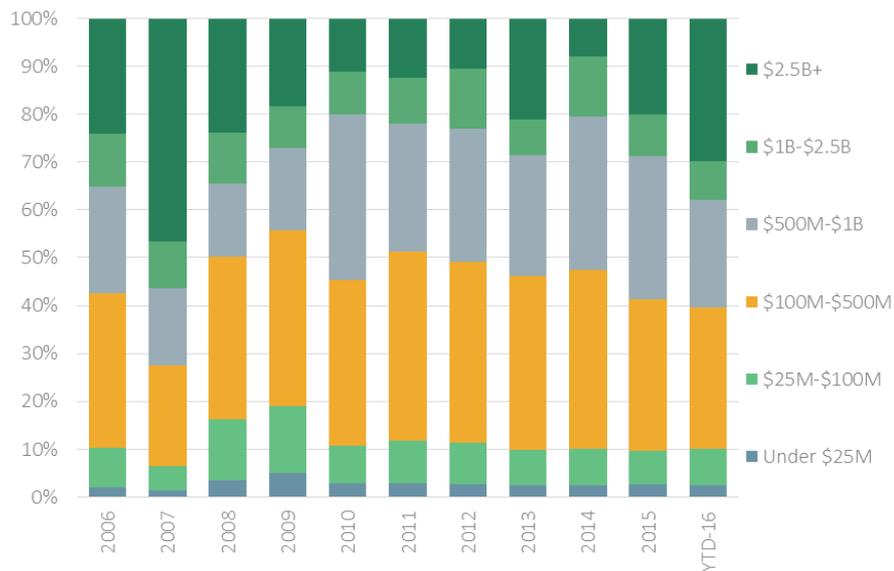


Median debt percentages for U.S. PE buyouts



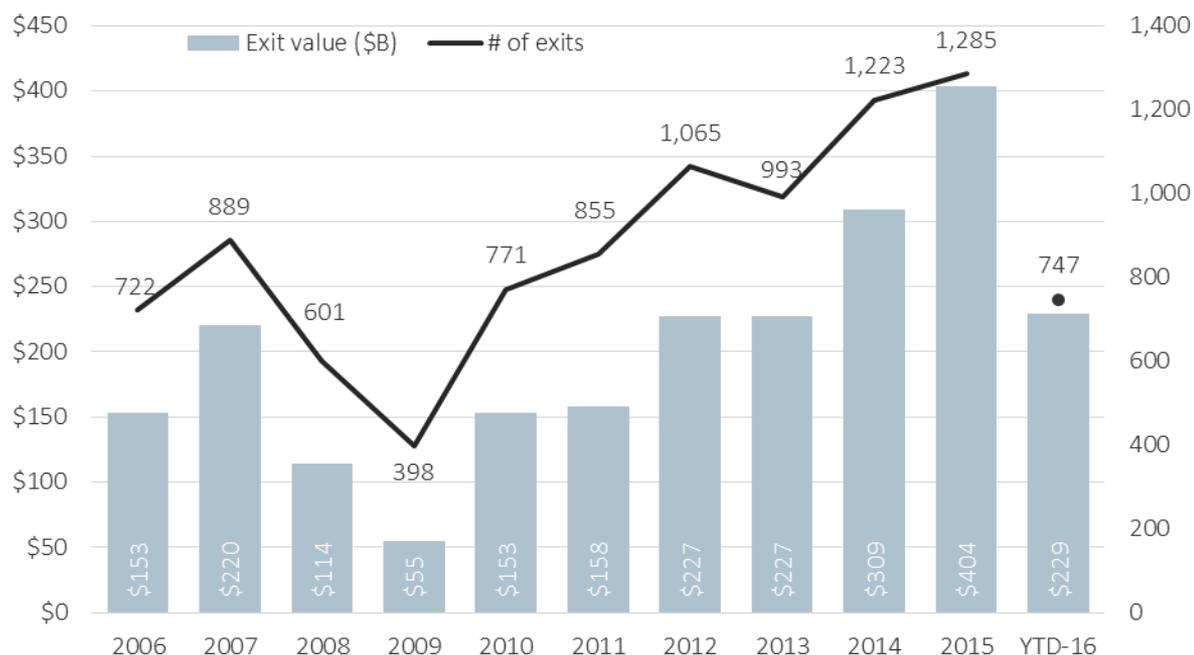
# U.S. Private Equity Update – Deployment Activity

- ▶ As noted on the previous slide, private equity median entry valuations have moved up in a material manner in the first three quarters of 2016. This is partially attributable to a mix shift toward larger transactions and more expensive sectors. The charts below present deal size and industry allocations for U.S. private equity investment activity for each vintage year since 2006 using the Pitchbook data set
  - ▶ The chart on the left depicts allocation by deal size. As seen therein, roughly 30% of deal volume by value is attributable to transactions with enterprise values of at least \$2.5 billion. This result compares to 20% in 2015, and is the highest allocation since 2007 when 47% of volume was attributable to deals of this size
  - ▶ The chart on the right depicts allocation by sector. Specifically, roughly 27% of deal volume by value is attributable to transactions in the IT sector which compares to 14% in 2015. Software represents a material component of this increase in volume, and assets in that sub-sector have been trading at very high prices



# U.S. Private Equity Update – Exit Activity

- ▶ Through the first three quarters of 2016, U.S. private equity funds exited 747 investments in transactions with a total value of \$229 billion
  - ▶ This compares to 932 deals with a total value of \$275 billion in the first three quarters of 2015
  - ▶ Exit activity will not likely match the record levels realized in 2015, but 2016 appears on pace to match or exceed the volumes realized in 2014 which was the previous high record year
  - ▶ The chart below presents U.S. private equity exit activity for each vintage year since 2006 using the Pitchbook data set



# U.S. Private Equity Update – Exit Activity

- ▶ While exits to private equity buyers continue to represent an increasing component deal volume by count, the vast majority of exit value is generated by sales to strategic acquirers
  - ▶ Exits to private equity sponsors represent 45% of transactions done during the first three quarters of 2016. Secondary buyouts as a percentage of deals done have been increasing steadily since 2009
  - ▶ Exits to corporate acquirers represented 76% of total transaction value during the first three quarters of 2016. This exceeds the 72% share in 2015 which represented the previous high
  - ▶ IPOs continue to represent a small component of exit activity
  - ▶ The charts below present U.S. private equity exit activity by transaction type or each vintage year since 2006 using the Pitchbook data set

U.S. PE-backed exits (#) by type

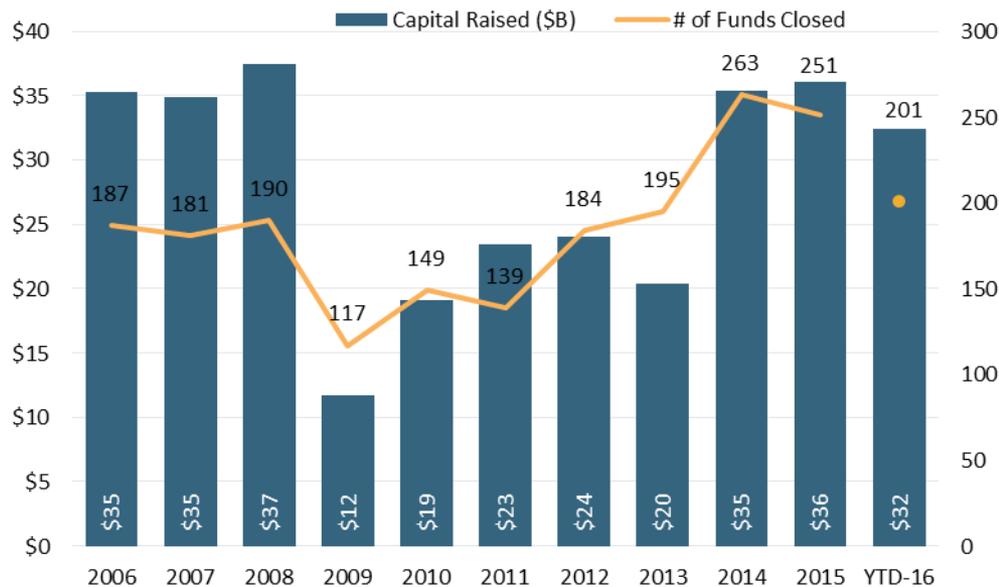


U.S. PE-backed exits (\$bn) by type



# U.S. Venture Capital Update - Fundraising

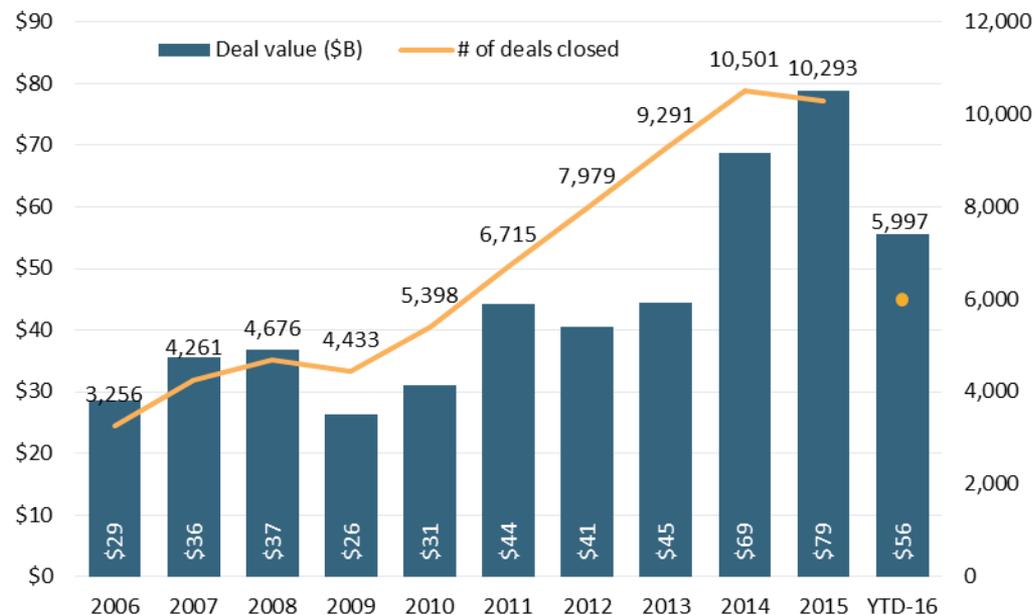
- ▶ Through the first three quarters of 2016, \$32 billion had been raised across 201 U.S. venture capital funds
  - ▶ This result compares to \$24 billion across 193 funds during the first three quarter of 2015
  - ▶ As with U.S. private equity, 85% of venture funds closed in 2016 have hit or exceeded target. This statistic had been 82% in 2015 and 80% in 2014 but ranged from 50%-67% prior to that
  - ▶ The chart below presents U.S. fundraising activity for venture capital for each vintage year since 2006 using the Pitchbook data set



Source: Pitchbook

# U.S. Venture Capital Update – Deployment Activity

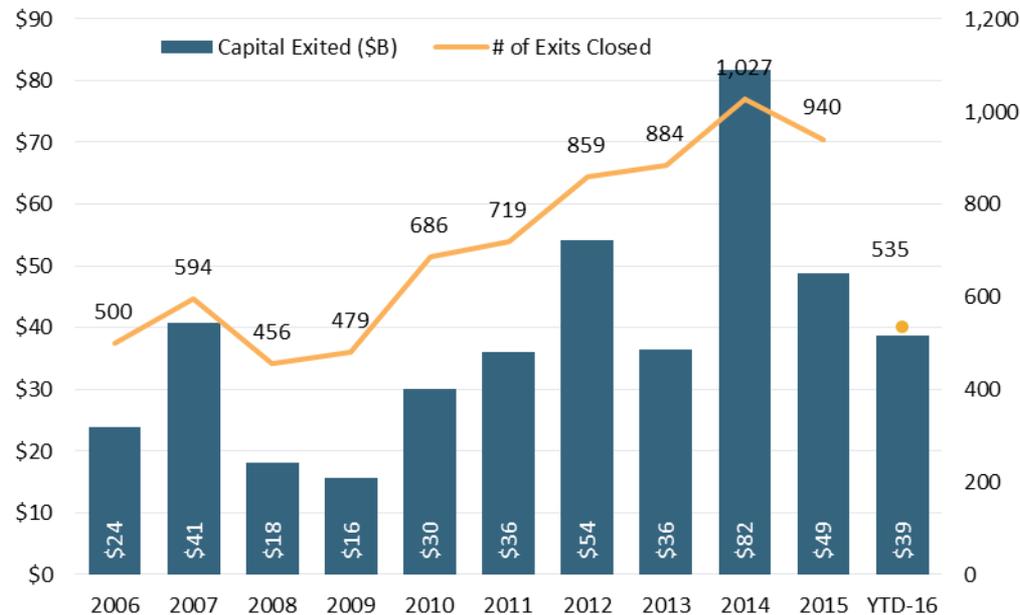
- ▶ Through the first three quarters of 2016, \$56 billion had been allocated to 5,997 U.S. venture capital financing rounds
  - ▶ This total compares to \$61 billion allocated to 7,953 rounds during the first three quarters of 2015
  - ▶ As has been the case since 2014, more than 60% of capital deployed has been financing rounds of at least \$25 million
  - ▶ Year-to-date median financing rounds stand at \$1 million for angel/seed rounds (\$0.75m in 2015), \$5.4 million for early stage rounds (\$4.7m in 2015) and \$10 million for late stage rounds (\$10.6m in 2015)
  - ▶ The chart below presents U.S. venture capital investment activity for each vintage year since 2006 using the Pitchbook data set



Source: Pitchbook

# U.S. Venture Capital Update – Exit Activity

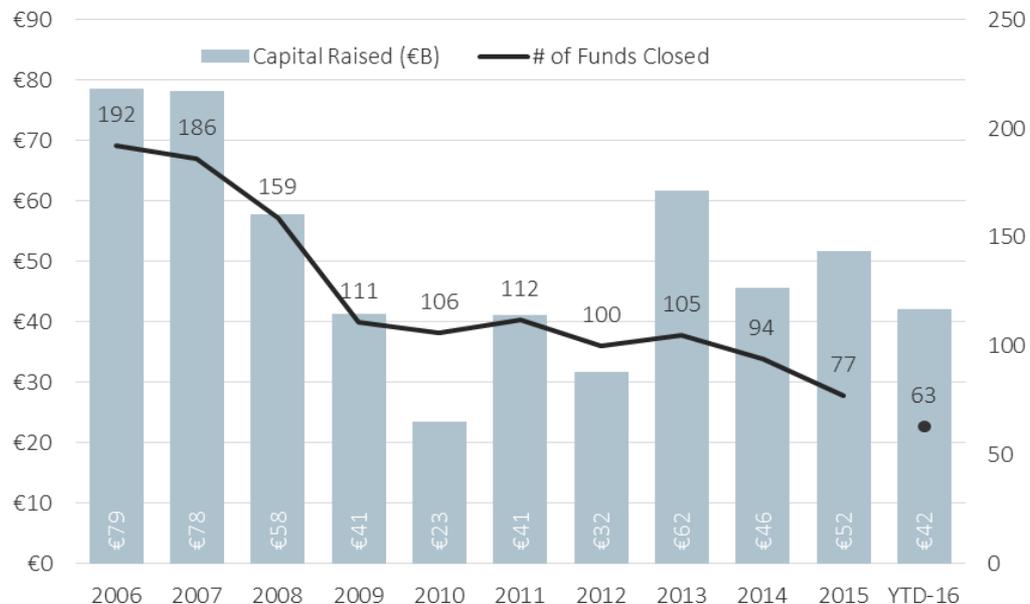
- ▶ Through the first three quarters of 2016, 535 U.S. venture backed companies have been exited in transactions totaling \$39 billion
  - ▶ This total compares to \$33 billion generated by 726 exits during the first three quarters of 2015
  - ▶ Notably, 92% of year-to-date exit activity has been via strategic acquisition. This outcome compares to 74% in 2015 and 84% during the record year of 2014
  - ▶ IPOs have generated just \$2.2 billion of liquidity year-to-date. VC backed IPO activity in 2016 is likely to record its lowest volume since 2009
  - ▶ The chart below presents U.S. venture capital exit activity for each vintage year since 2006 using the Pitchbook data set



Source: Pitchbook

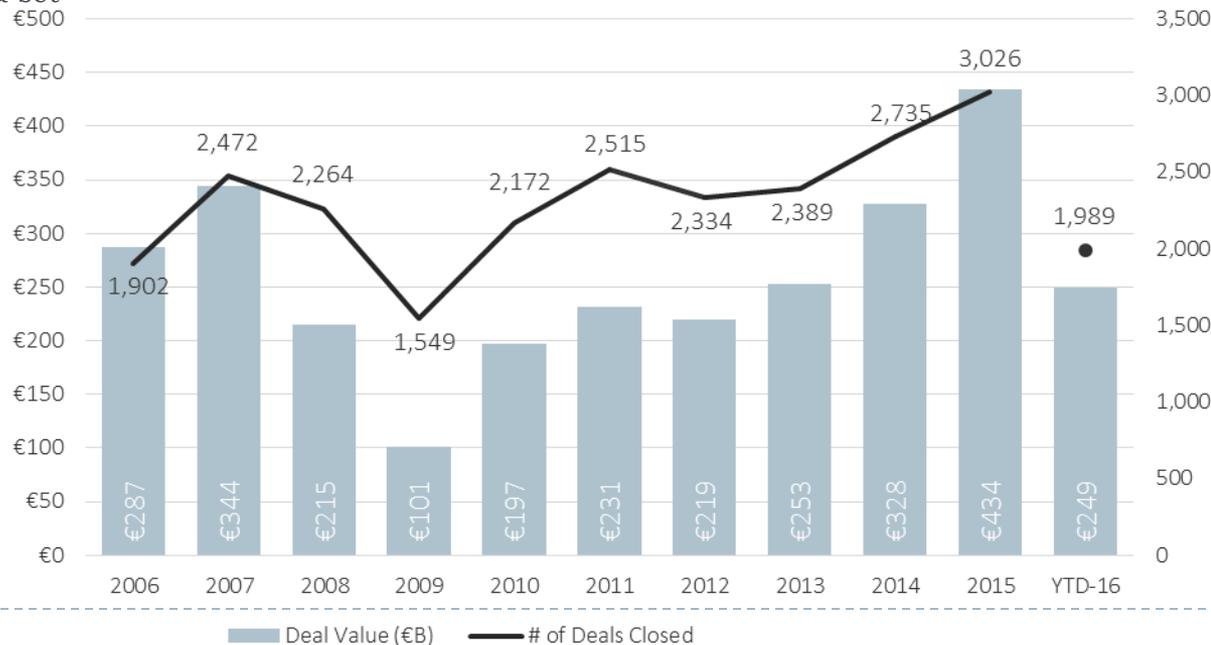
# Europe Private Equity Update - Fundraising

- ▶ Through the first three quarters of 2016, €42 billion had been raised across 63 European private equity funds
  - ▶ As has been the case the past several years, only one fund that closed as of September 30, 2016 reached or exceeded €5 billion in capital commitments (Cinven 6 - €7 billion)
    - ▶ This result is likely to change when Permira finalizes its Fund VI raise, but the European statistics are hurt by the fact that Advent and Apax are counted as USD fundraises
  - ▶ 87% of all funds raised by count in the first three quarters of 2016 had commitments of less than €1 billion
  - ▶ However, median fund size continues to increase in Europe to €346 million year-to-date in 2016 from €301 million in 2015 and €152 million as recently as 2013
  - ▶ The chart below presents European fundraising activity for private equity for each vintage year since 2006 using the Pitchbook data set



# Europe Private Equity Update – Deployment Activity

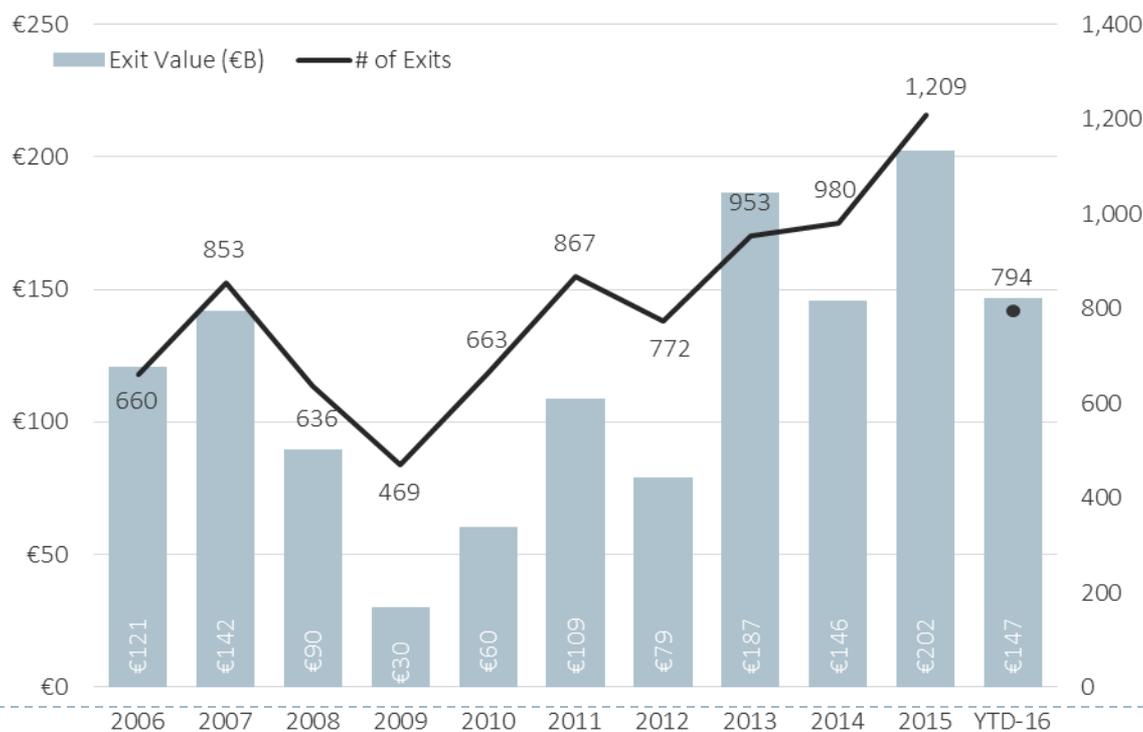
- ▶ Through the first three quarters of 2016, 1,989 European private equity led transactions were closed with a total value of €249 billion
  - ▶ This result compares to 2,242 investments totaling €325 billion during the first nine months of 2015
  - ▶ Europe continues to be an active region for U.S.-based sponsors. Of the deals done year-to-date in 2016, 20% of all transactions representing 22% of total volume included some level of U.S. participation on the buy
  - ▶ Unlike the U.S. market, the European PE market has not seen a material increase in deal size in 2016. The first three quarters of the year saw only two deals done accounting for 3% of total transaction value in the €2.5 billion and above enterprise value range
    - ▶ In 2015, there were 19 deals that accounted for 18% of total transaction value in this size range
  - ▶ The chart below presents European private equity investment activity for each vintage year since 2006 using the Pitchbook data set



Source: Pitchbook

# Europe Private Equity Update – Exit Activity

- ▶ Through the first three quarters of 2016, 794 exits of European sponsor backed companies were closed with a total value of €147 billion
  - ▶ This is broadly on pace with 2015 from a transaction value standpoint, and represents the continuation of a strong trend for exits in Europe since 2013
  - ▶ Exits via corporate acquisition have been the driver of activity in 2016 representing 51% of deals by count and 70% of total transaction volume. In 2015 strategic sales represented 40% by transaction count and 46% by total value
  - ▶ The chart below presents European private equity investment activity for each vintage year since 2006 using the Pitchbook data set



Source: Pitchbook

TAB 4 – Real Estate Portfolio Review

OPERF Real Estate Portfolio



# Oregon State Treasury

## OPERF Real Estate Portfolio 2016 Review

Anthony Breault, Senior Real Estate Investment Officer  
Austin Carmichael, Real Estate Investment Officer

February 01, 2017

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- I. New Investments - 2016
- II. Commitments & Cash Flows
- III. Portfolio Snapshot
- IV. Performance
- V. Sub-Portfolio Weightings
- VI. Portfolio Diversification
  - Property Type
  - Geographic
  - Relationships
- VII. Portfolio Compliance
- VIII. Portfolio Composition
- IX. 2016 In Review
- X. Current Initiatives
- XI. 2017 Initiatives

# Real Estate Portfolio – 2016 New Investment Activity

1H 2016 was primarily focused on reviewing the real estate portfolio's composition, historical returns, risk allocations and applicable benchmarks.

- March 2016: OIC adopted revised portfolio allocations and a new benchmark

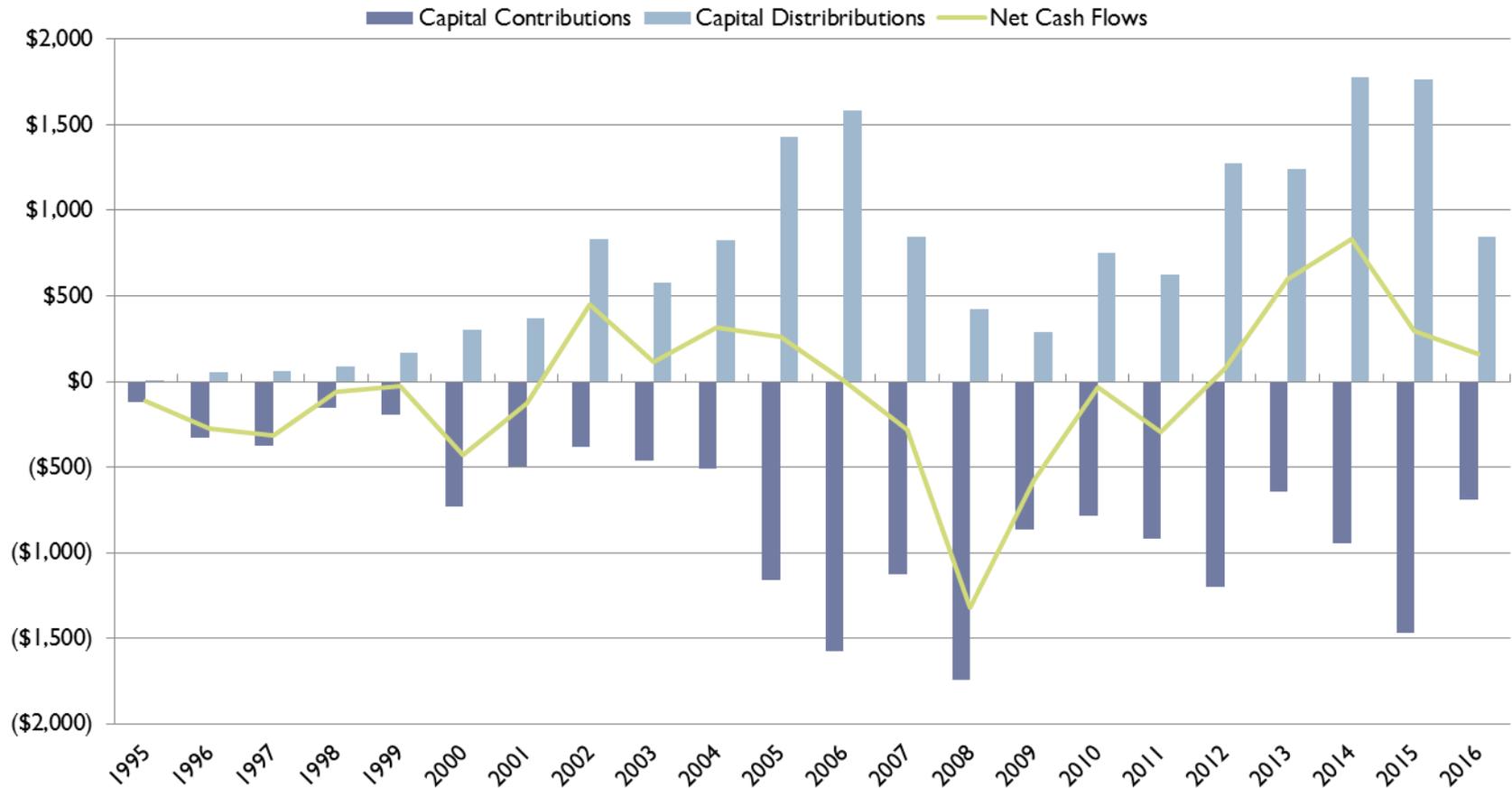
FUND NAME	PARTNERSHIP STRUCTURE	PROPERTY TYPE	STRATEGY	GEOGRAPHY	COMMITMENT
1 Lone Star Real Estate Fund V	Closed End Fund	All	Opportunistic	Global	\$300,000,000
2 DivcoWest Fund V	Closed End Fund	All	Value Add	Domestic	\$250,000,000
3 JP Morgan Strategic Property Fund	ODCE Fund	All	Core	Domestic	\$300,000,000
4 GID Investment Advisors	Separate Account	Multifamily	Core	Domestic	\$250,000,000
<b>TOTAL</b>					<b>\$1,100,000,000</b>

2H 2016 major initiatives included reviewing the ODCE universe of 24 open ended funds

- Staff/Consultant selected a sub-portfolio of 4 new ODCE funds to comprise the real estate portfolio's benchmark exposure (~10% of portfolio)
- Individual fund underwriting commenced August 2016 with a Q2 2017 completion target

**1H 2016 = policy revisions. 2H 2016 = implementation.**

# Real Estate Portfolio - Commitments & Cash Flows



\* 2016 totals through June 30, 2015.

**2016 marked the fifth consecutive year of net distributions.**

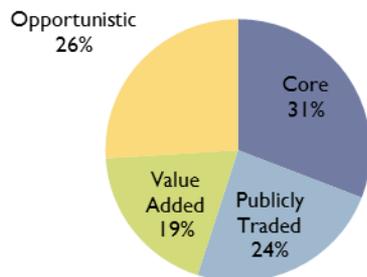


# Real Estate Portfolio Snapshot (as of 6/30/16)

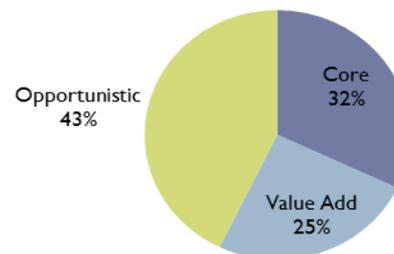
Current Portfolio Net Asset Value	\$8.67 billion 12.6% of Total Fund
Target Allocation to Real Estate	\$8.61 billion 12.5% of Total Fund
Total Number of Investments	85
Total Number of Relationships	47
- Ongoing Relationships	24
- Legacy Relationships	23

**\*\* Concentration: Top 10 relationships comprise 63% of portfolio NAV \*\***

## NAV by Strategy



## Unfunded Commitments



**Real Estate Portfolio is at Target Allocation**

# Real Estate Portfolio - Performance (as of 6/30/2016)

	<u>1-YEAR</u>	<u>3 -YEAR</u>	<u>5- YEAR</u>	<u>10- YEAR</u>
Core	12.39	12.38	12.89	7.76
Value Added	18.27	17.58	15.21	2.64
Opportunistic	-0.27	6.75	8.41	3.97
Public Real Estate (REITs)	12.71	10.27	10.01	5.22
<b>Total Real Estate Portfolio</b>	<b>9.86</b>	<b>11.29</b>	<b>11.33</b>	<b>6.00</b>
<b>New Benchmark:</b> NFI-ODCE +50 bps*	11.30	12.47	12.16	5.69
<b>Prior Benchmark:</b> NPI	10.64	11.61	11.52	7.40

\* New Benchmark of ODCE + 50bps became effective 2Q 2016 following policy revisions adopted March 9, 2016.

**Core outperforming stated benchmarks, Value Add recovering from GFC while Opportunistic has both J-curve issues (i.e., new investments) and a high concentration of 2006-2008 vintage year exposures.**

# Real Estate Portfolio - Sub-Portfolio Weightings

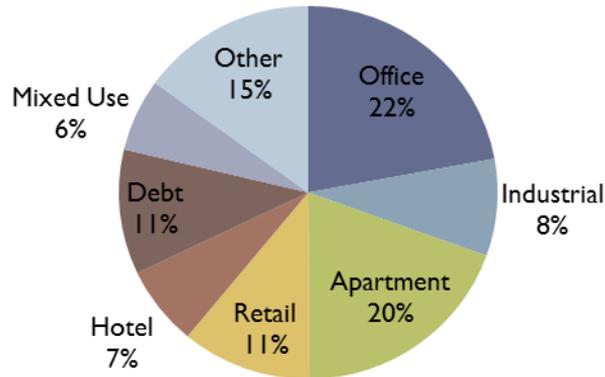
(New portfolio allocations effective Q2 2016)

<u>Portfolio</u>	<u>Prior Allocation Range</u>	<u>Revised Allocation Range</u>	<u>Actual</u>	
Core (Private)	20-40%	45-65%	30.9%	↑
REITs	20-25%	0 -10%	24.1%	↓
Value Added	15-25%	10-30%	19.1%	→
Opportunistic	20-40%	10-30%	26.0%	↓

**Like 2016, staff focus in 2017 will be on allocating to core.**

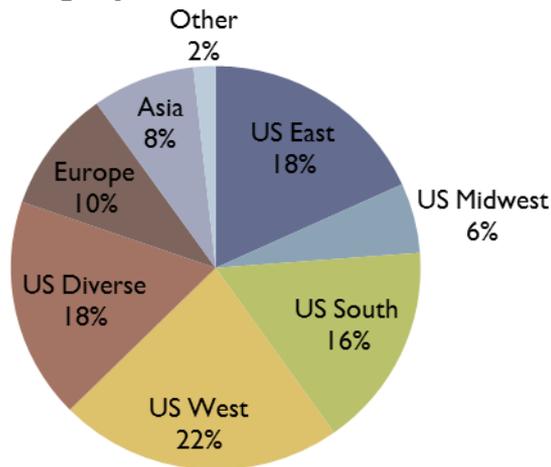
# Real Estate Portfolio - Aggregate Portfolio Diversification

## Property Type Diversification



Portfolio is broadly diversified across property type and geography.

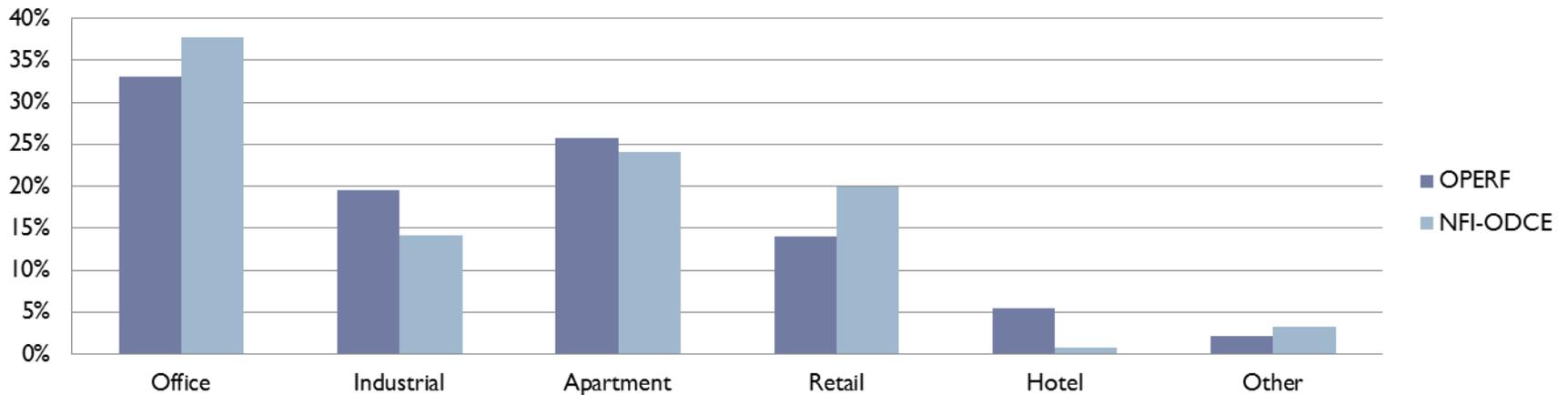
## Geographic Diversification



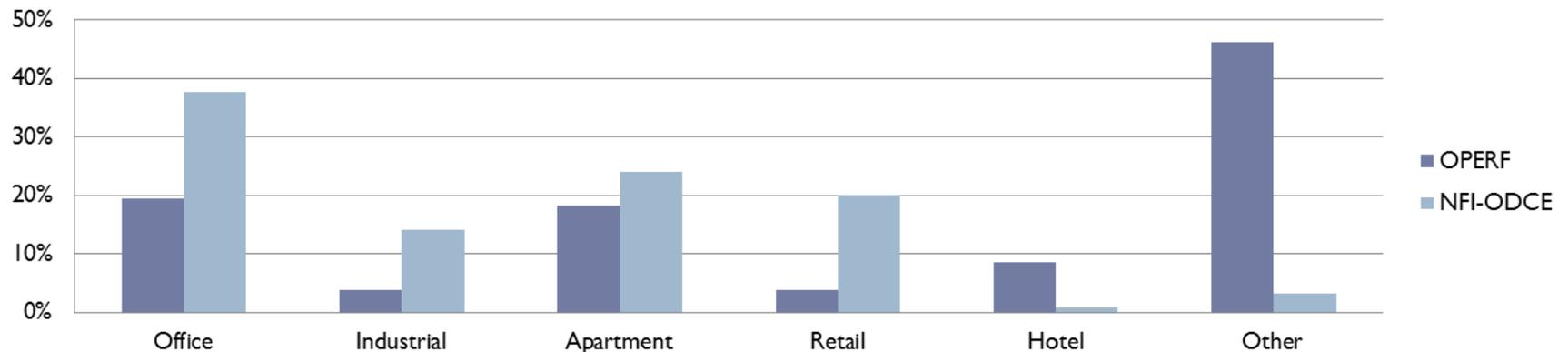
Domestic exposure = 80%

# Real Estate Portfolio - Property Type Composition

**Core Portfolio**  
**Property Type Diversification as of June 30, 2016**



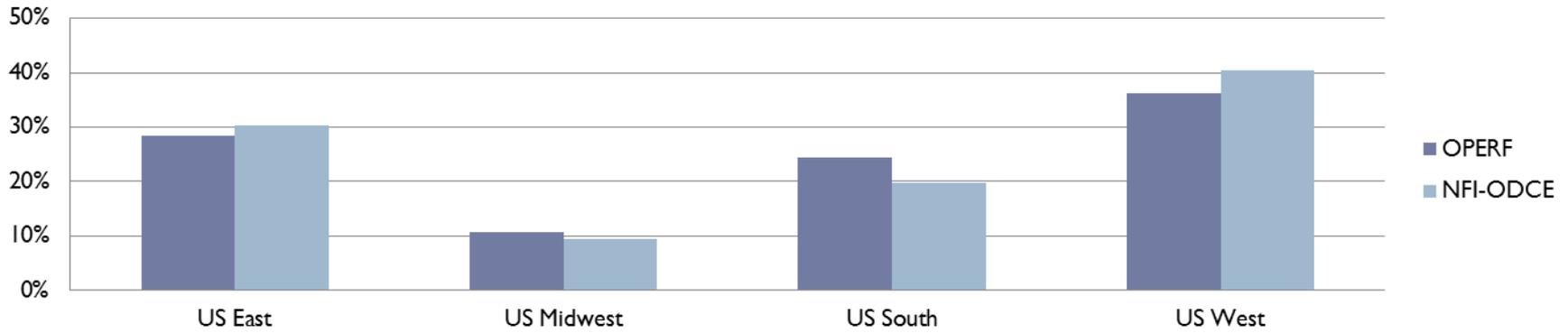
**Value Added and Opportunistic Portfolio**  
**Property Type Diversification as of June 30, 2016**



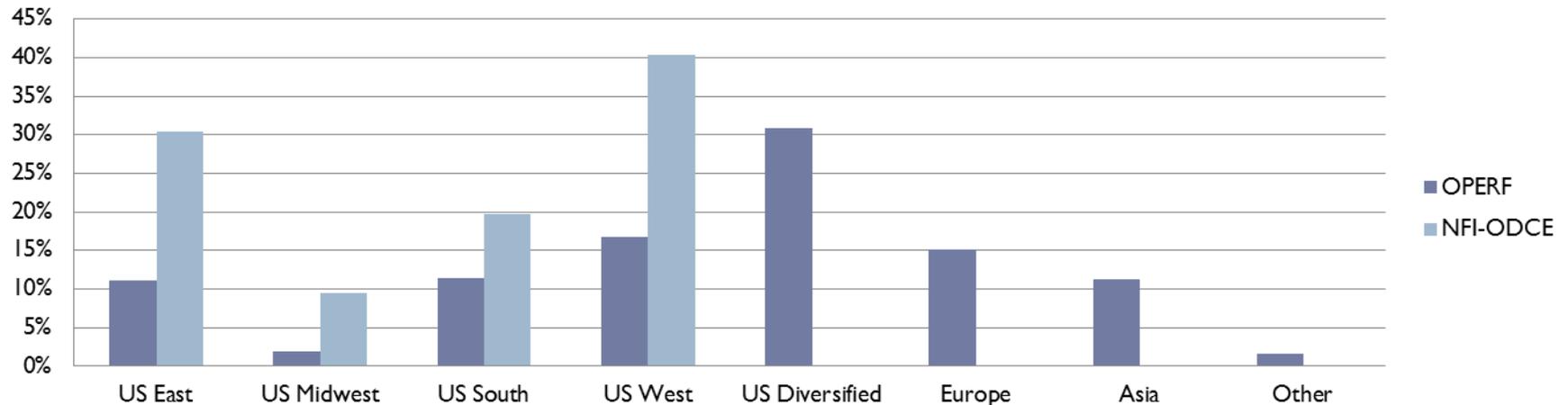
\* Other includes 33.7% debt, 19.6% mixed use, 16% private equity real estate, 4.3% REIT equity, 3.6% land, 2.7% infrastructure, 2.2% healthcare, 1.1% senior living and additional small exposures in self storage, timber, entertainment, parking, single family, and cash.

# Real Estate Portfolio - Geographic Composition

**Core Portfolio**  
**Geographic Diversification as of June 30, 2016**

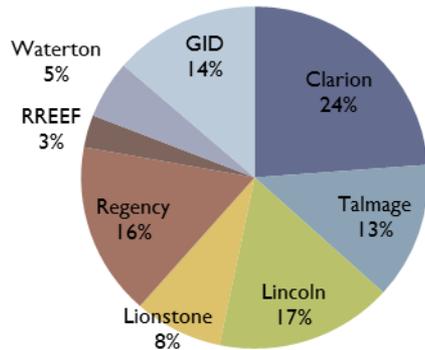


**Value Added and Opportunistic Portfolio**  
**Geographic Diversification as of June 30, 2016**

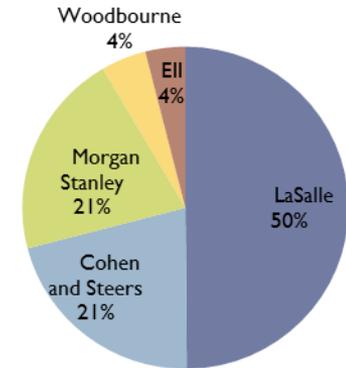


# Real Estate Portfolio - Relationship Concentration by Strategy

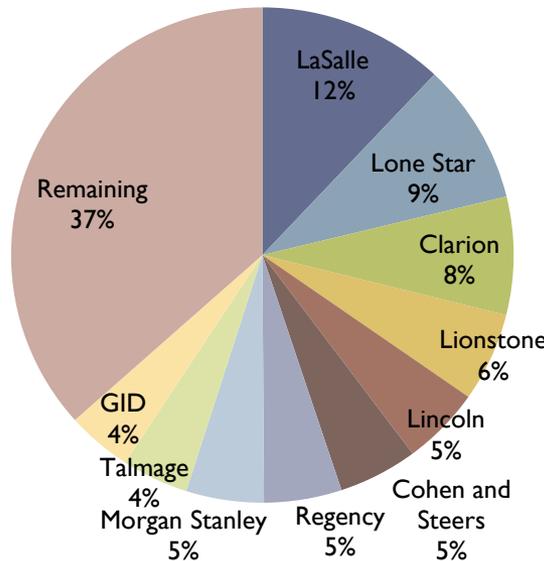
## Core



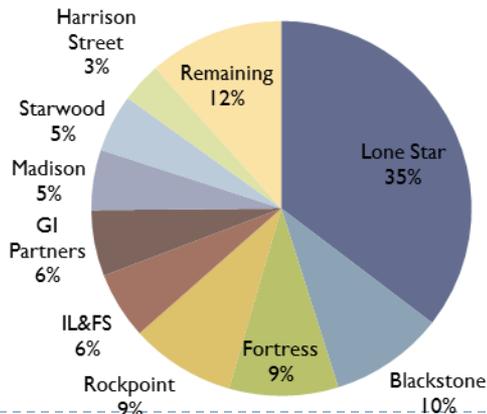
## Publicly Traded



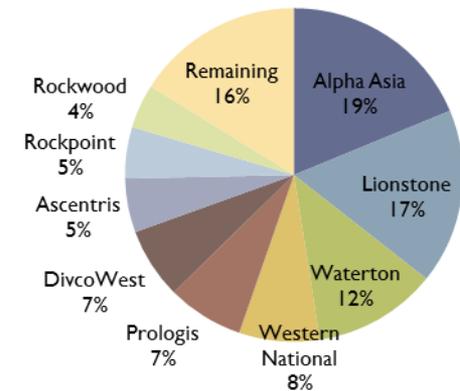
## Total Portfolio



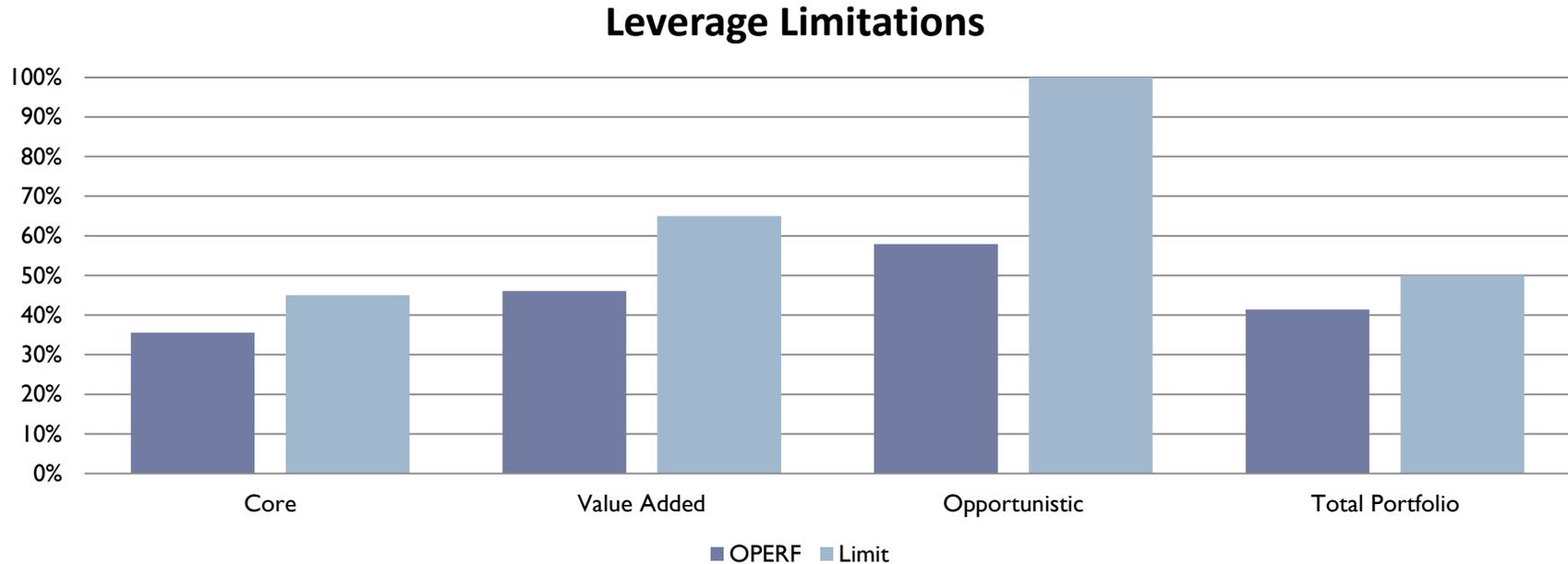
## Opportunistic



## Value Added



# Real Estate Portfolio - Leverage Compliance



- The total real estate portfolio and all its sub-portfolios are within the leverage limitations as of June 30, 2016<sup>1</sup>
- Total portfolio leverage was 41.4% vs. limit of 50%

1. Note: leverage for the publicly traded sub-portfolio is not available. Reported leverage for the opportunistic sub-portfolio was 57.9% as of June 30, 2016, and a leverage limit for the opportunistic sub-portfolio has not been established within policy guidelines.

# Real Estate Portfolio – Compliance / Required Reporting

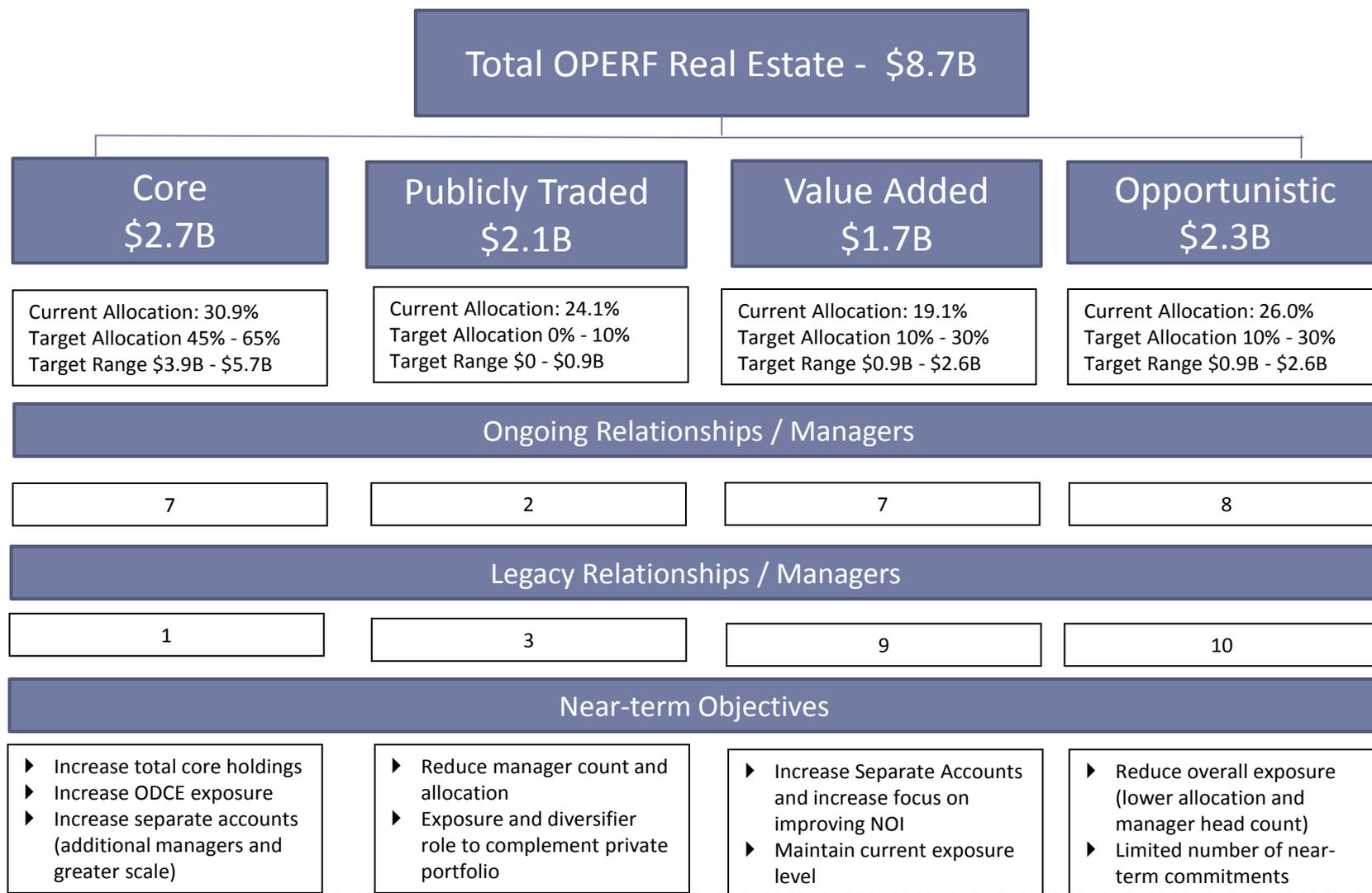
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- No portfolio characteristics out of compliance, including:
  - Debt / LTV
  - Appraisals
  - Portfolio allocations/bandwidths
  
- Terminations
  - None to date
  
- Non-mandate transactions
  - Clarion Partners made two acquisitions in 2016 as part of its non-mandate allocation:
    - An industrial asset in Carlisle, PA (acquired 6/21/2016); and
    - A multi-family asset in Seattle, WA (acquired 8/8/2016).

**Portfolio compliant with Policy**



# Real Estate Portfolio - Composition



# Real Estate Portfolio – 2016 In Review

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## Underlying fundamentals

- Similar to prior year, both supply and demand for CRE are favorable..... yet:
  - 7 years with a near-zero lending rate;
  - More capital in the system seeking yield;
  - Sovereign wealth funds active with low capital costs; and
  - Most of the appreciation in core real estate is behind us, focus now shifts to sustainable income/NOI growth.
  
- OPERF Real Estate Portfolio focus:
  - Structure long-term partnerships with proper alignment/governance;
  - Find investment opportunities that can withstand macro-economic challenges; and
  - Maintain valuation discipline and focus on durable cash flow generation.

**Future core returns will be lower, focus on cash flow quality/durability.**

# Real Estate Portfolio – Current Initiatives

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## Staffing

- Search underway to fill currently vacant Real Estate Coordinator position by late Q1/early Q2
- Reality Check: portfolio is understaffed given its size, complexity, geographic profile and partnership demands

## Portfolio Composition

- Implementing strategic plan approved by the OIC in 2016
- Operating under a “relationship budget” to preserve limited staff bandwidth for monitoring and oversight activities
- Tilting portfolio towards Core/Core Plus to improve quality
- Reducing Opportunistic and publicly-traded REIT exposure to reduce volatility

## Core

- Increasing total core allocation through commitments to:
  - open-ended diversified funds; and
  - select existing manager re-ups

**Near term focus on rebuilding core portfolio = “base guitar role”**

## Real Estate Portfolio – Current Initiatives (continued)

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### Publicly Traded

- Reduce total exposure to REITS..... but retain positions in certain, strategic property types (i.e., malls)

### Value Added

- Maintain current exposure to Value Added strategies
  - De-risk Value Add by seeking selective separate accounts to complement closed-end funds and reduce market timing vulnerabilities
- Increase separate account exposures
- Near-term priority to add multifamily Value Added separate account manager to complement existing Core multifamily mandate
- Will consider retail and industrial strategies synergistic to existing core mandates

### Opportunistic

- Reduce total Opportunistic exposure
- Limited re-ups or new relationships targeted; consider only a limited number of firms and complementary strategies

# Real Estate Portfolio – 2017 Partnerships of Interest / Underwriting Initiatives

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## Core

- Underwrite an additional 3 ODCE funds to create a 5-fund, open-ended sub-portfolio (i.e., portfolio benchmark)
- Evaluate open-ended funds in retail and industrial
  - Both asset classes are challenging to scale
  - Retail environment facing headwinds from disruptive technology and changing consumer preferences
- Evaluate open-ended funds in Core Plus
  - May provide risk-adjusted outperformance to late-cycle core
- Execute select re-ups with existing separate account managers

## Value Add

- Add new multifamily separate account
  - “Value add to core” mandate to complement existing core multifamily separate account
- Re-up of existing separate account mandate
  - Negotiating revised terms for less capital recycling & greater focus on multiple expansion / NOI growth
- Continue discussions for club structure with existing partner

## Opportunistic

- Not a 2017 focus
  - Currently overweight to Opportunistic (26% versus 20% target)

## TAB 5 – Annual Placement Agent Report

## Annual Placement Agent Disclosure

February 1, 2017

### Purpose

In accordance with its Policy 5.03.01, Conflict of Interest and Code of Conduct, the Oregon State Treasury (OST) shall disclose, in all investment recommendations to the Oregon Investment Council (OIC), any Placement Agent used by an investment firm *that has had any contact with OST investment staff*. OST investment staff shall also provide the OIC with an annual summary of the foregoing, and make same available to the public on the OST website.

### Placement Agent Contact Summary for Calendar Year 2016

<u>Partnership</u>	<u>OPERF Commitment</u>	<u>Placement Agent</u>
GGV VI, VI Plus, and Discovery	\$80 million (combined)	UBS Securities LLC
Acon IV	\$37.5 million	Evercore
Northern Shipping Fund III	\$125 million	Eaton Partners LLC
EMR Capital Resources Fund II	\$125 million	FirstPoint Equity LTD
Starwood Energy Infrastructure Fund III	\$150 million	Campbell Lutyens & Co Inc
MBK IV	\$200 million	Credit Suisse
TDR IV	€200 million	Cambell Lutyens & Co
Veritas VI	\$250 million	UBS Securities LLC

Note that Placement Agents are retained by investment funds' General Partner, and OST investment staff do not rely on such placement agent firms for access or analysis.

TAB 6 – Proposed 2018 OIC Meeting Dates

# **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**

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Wednesday, January 31, 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 7 – Fixed Income Policy Update

OPERF Fixed Income Portfolio



# **OPERF Internally-Managed Portfolios: Exchange Traded Futures**

**Tom Lofton, CFA**

**Fixed Income Investment Officer**

**Michael Viteri**

**Senior Public Equity Investment Officer**

January 2017

# Agenda

Section	Pages	OIC Investment and Management Beliefs Mapping															
		1A	1B	1C	1D	1E	2A	2B	3A	4A	4B	5A	5B	6A	6B	7A	7B
Executive Summary	3																
I. Exchanged Traded Futures Contracts	4-5																
II. Internally Managed Portfolio Futures Usage	6																
III. Proposed Futures Usage	7																
IV. Futures Management (Pre- and Post-Aladdin)	8-9																
V. Policy Recommendation	10																
Appendix - A. Treasury Futures Example Scenarios	11-12																

## LEGEND: OIC INVESTMENT AND MANAGEMENT BELIEFS

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

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

### 2 ASSET ALLOCATION DRIVES RISK AND RETURN

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

### 3 THE EQUITY RISK PREMIUM WILL BE REWARDED

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

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

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

### 5 CAPITAL MARKETS HAVE INEFFICIENCIES THAT CAN BE EXPLOITED

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

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

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

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

- A. The OIC recognizes that the quality of regulation and corporate governance can affect the long-term value of its investments.
- B. The OIC also recognizes that voting rights have economic value and therefore must be treated as a fund or beneficiary asset.

# Executive Summary

## ➤ Exchange Traded Futures

- Exchange traded futures are widely used, highly liquid financial derivative instruments designed to replicate specific investment exposures and eliminate counter-party risk.

## ➤ Fixed Income Utilization

- U.S. Treasury futures are an effective and efficient tool for managing fixed income portfolios:
  - Enable more precise interest rate (i.e., “duration”) risk management;
  - Reduce cash balance return drag; and
  - Improve ability to manage portfolio risk and return relative to portfolio's assigned benchmark.

## ➤ Portfolio and Risk Management

- Investment staff currently utilizes exchange traded futures in internally-managed OPERF portfolios and has extensive experience investing in and trading exchange traded futures.
- Aladdin Portfolio and Risk Management System gives staff an industry-leading, integrated toolset.
- 4-member fixed income team provides depth to daily oversight responsibilities.
- OST and Aladdin investment operations groups in place to provide trade settlement and middle-office support.

## ➤ No Leverage

- Leverage prohibited by *INV 401: Strategic Role of Fixed Income, Section F. Absolute Restrictions*.
  - Prohibits short sales and leverage that would otherwise create positions greater than 100% of portfolio market value.
- 100% of U.S. Treasury futures notional positions are offset with cash.
- OST and Aladdin compliance are able to prevent and monitor non-compliant investments on both a pre- and post-trade basis.

## ➤ Staff Recommendations

- Approve revisions to INV 401 that facilitate Government Portfolio transition to internal management by allowing maximum 10% U.S. Treasury futures investment in internally-managed fixed income portfolios.

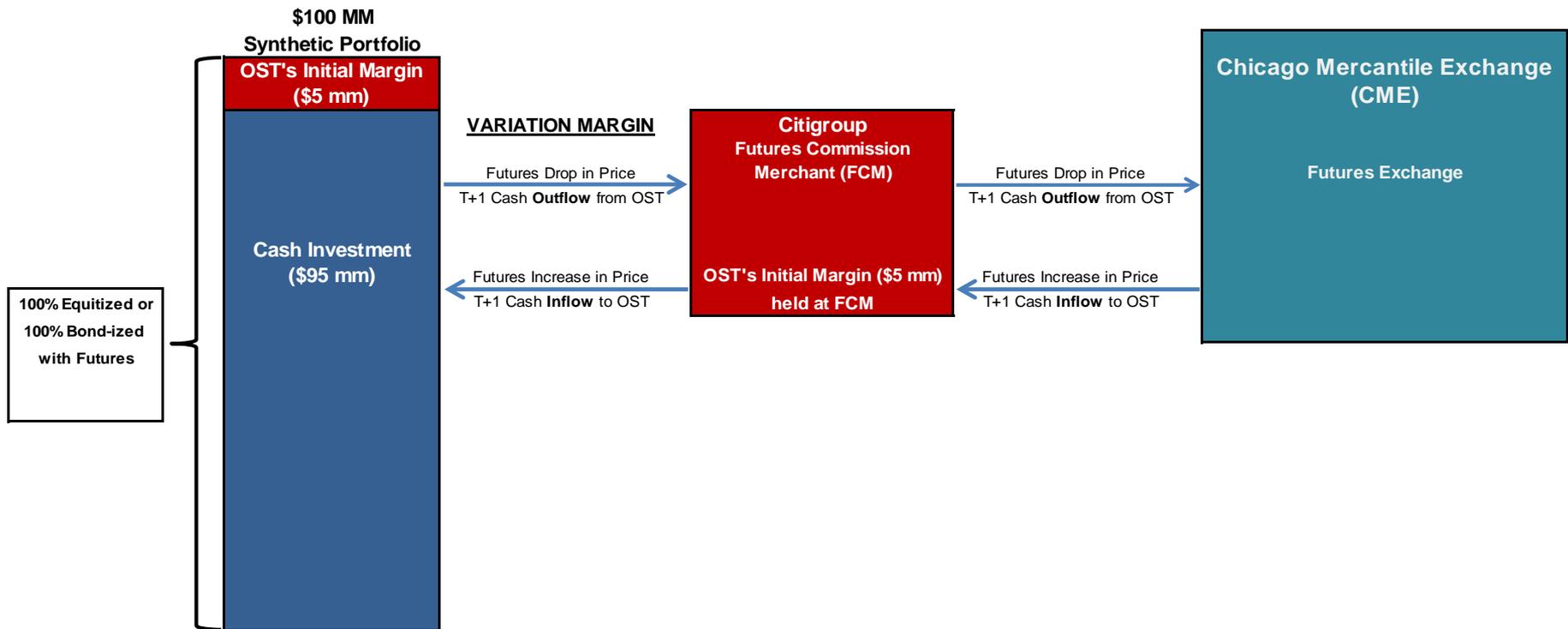
# I. Exchange Traded Futures Contracts

- **Exchange Traded Derivatives.** An exchange traded futures contract (such as the S&P 500 Index Futures or the 10-Year U.S. Treasury Note Futures) is based on (derived from) the value of the underlying instrument (i.e., the S&P 500 Index level or a specific maturity 10-Year U.S. Treasury bond price). Futures contracts enable investors to obtain exposure to desired characteristics of the underlying asset without holding/owning the underlying asset in physical form.
  
- **Marked-to-Market Daily To Eliminate Counter-party Risk.** Unlike many other derivatives that trade “over the counter” (and hence are subject to counterparty risk), futures trade on organized exchanges. Futures exchanges use a clearinghouse process to mitigate counterparty risk by guaranteeing and enforcing standardized contract terms and conditions (e.g., daily mark-to-market requirements).
  
- **Margins (Initial and Variation)**
  - Initial Margin – Exchanges require futures contract parties (i.e., buyers who are long and sellers who are short) to put up an “initial margin” in cash or cash-like securities. This initial margin is an amount typically equal to 5% - 15% of a contract’s value. Initial margin levels are determined by each exchange, are set as a percentage of contract value and are maintained throughout the contract term as surety for the exchange and are refunded when the contract ends.
  
  - Variation Margin – Futures contract values change daily (causing one side of the trade to gain value at the expense of the other) and thus are “marked-to-market” or appraised on a daily basis. To adjust for these mark-to-market price changes, the exchange debits the losing party’s margin account and credits the gaining party’s account (also known as “variation margin”), ensuring that the correct profit and loss is reflected daily for all contract parties. Variation margin debits and credits are settled in cash on a t+1 (i.e., next day) basis.
  
- **Trading Futures Contracts.** Futures are purchased at an exchange through a Futures Commission Merchant (FCM). The FCM’s role in futures markets is similar to that of a broker in securities markets. In addition to accepting buy and sell orders from clients (such as OST), the FCM also holds initial margin (collateral) in accordance with the rules of the exchange on which they are trading.

# I. Exchange Traded Futures Contracts

## Futures Exchanges Mitigate Counterparty Risk

- The price of a futures contract changes daily (causing one side of the trade to gain value at the expense of the other), and the contract is “marked-to-market” or appraised on a daily basis.
- The mark-to-market process requires the futures exchange to debit the losing party’s margin account and credit the gaining party’s margin account (also known as “variation margin”), ensuring that the correct profit and loss is reflected daily.



## II. Internally-Managed Portfolios Futures Usage

Since 2009, OST investment staff have achieved equity index exposure in internally-managed S&P 500 and S&P 400 index portfolios in two ways:

1. By directly buying and holding the underlying stocks that constitute the index (i.e., by assembling a physical portfolio). This direct equity ownership accounts for over 95% of these internally-managed index portfolios' total security-level positions and corresponding market value.
2. By purchasing equity futures contracts (i.e., synthetic indexing) to 'equitize' cash held within the portfolios as a result of transaction activity, dividend and interest accruals, and/or corporate actions. **Without the use of synthetic indexing and futures as portfolio management tools, these internally-managed portfolios would incur "cash drag", and, over the long-term, underperform their assigned benchmarks.**

As of December 31, 2016, OST investment staff's internally-managed public equity efforts comprised approximately \$5.2 billion across four portfolios and included \$447 million in exchange traded futures positions.

Futures Contracts	Contract Value	Margin Requirement	S&P 500 Portfolio	S&P 400 Portfolio	Russell 2000 Portfolio	U.S. Risk Premia Portfolio
S&P 500 EMINI FUT Mar 17	\$ 113,513	\$ 4,750	57			48
S&P MID 400 EMINI Mar 17	\$ 167,690	\$ 6,700		50		
Russell 2000 Mini Mar 17	\$ 67,845	\$ 3,300			6,264	
<b>FUTURES NOTIONAL VALUE*</b>			<b>\$ 6,470,213</b>	<b>\$ 8,384,500</b>	<b>\$ 424,981,080</b>	<b>\$ 5,448,600</b>

PORTFOLIO EQUITY VALUE	\$ 2,017,477,486	\$ 563,885,902	\$ (1,341,600)	\$ 2,215,085,931
<b>PORTFOLIO CASH VALUE*</b>	<b>\$ 6,502,774</b>	<b>\$ 8,464,761</b>	<b>\$ 426,684,725</b>	<b>\$ 5,509,859</b>
TOTAL PORTFOLIO VALUE	\$ 2,023,980,260	\$ 572,350,663	\$ 425,343,125	\$ 2,220,595,790

\* Inclusive of portfolio leverage prohibition on internal management; accordingly, **futures exposure will be equal to or less than cash** held in the portfolio. **Portfolio leverage monitored daily using Aladdin Compliance module.**

### III. Proposed Futures Usage

- Investment staff are proposing the use of exchanged traded U.S. Treasury Futures in the approximately \$5.0 billion Government Portfolio benchmarked to the Bloomberg Barclays U.S. Treasury Index.

Futures Contracts	Contract Value	Margin Requirement
U.S. 2-YR NOTE (CBT) Mar 17	\$ 216,578	\$ 550
U.S. 5-YR NOTE (CBT) Mar 17	\$ 117,641	\$ 850
U.S. 10-YR NOTE (CBT) Mar 17	\$ 124,406	\$ 1,450
U.S. LONG BOND (CBT) Mar 17	\$ 151,781	\$ 4,400

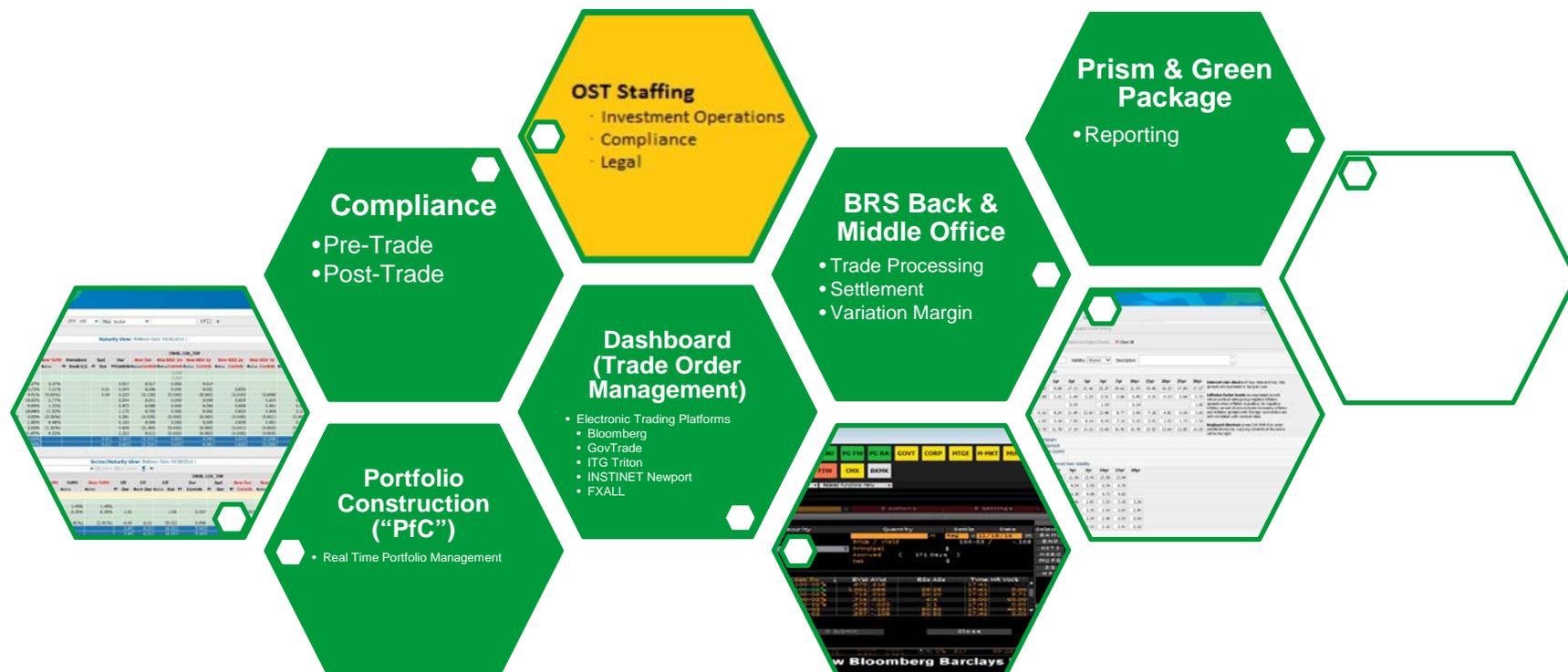
- Over 250 U.S. Treasury securities are included in the Government Portfolio’s benchmark. These securities represent varying degrees of liquidity, value (i.e., richness/cheapness) and interest rate (duration) risk.
- U.S. Treasury futures provide quick and efficient portfolio management capabilities that in turn allow investment staff sufficient time to optimize the Government Portfolio structure using physical securities (i.e., UST notes and bonds).
- Use Cases
  - Portfolio interest rate risk (i.e., “duration”) adjustments.
  - Portfolio cash management (cash inflows, principal and interest payments, re-allocations, etc.).



## IV. OST Internally-Managed Futures Work Flow: Post-Aladdin

### One Investment Ecosystem:

- Aladdin Portfolio Construction (position blotter and trade lists);
- Aladdin Dashboard (order routing for stocks, bonds & futures);
- Aladdin Green Package, Prism, & Portfolio Risk Tool (risk analytics and reporting);
- Aladdin Portfolio Monitor (cash management); and
- BRS Back & Middle Office Services (trade settlement, **futures daily variation margin management**).



# V. Policy Recommendation

## INV 401: Strategic Role of Fixed Income for OPERF

Staff recommends changes (**redlined in Appendix B**) to INV 401 to accommodate transition of the Government Portfolio to internal management.

- Allow maximum 10% U.S. Treasury futures investment (measured in gross notional contract value) in internally-managed portfolios.

# Appendix A

## Treasury Futures Use Case – Duration Adjustment

- 1** Measured interest rate risk (i.e., “duration”) exceeds guideline compliance thresholds.
- 2** Purchasing futures position brings duration within guidelines.
- 3** Restricted cash position mandated by compliance ensures no leverage and 100% cash offset to futures position.
- 4** Restricted cash balance reduces remaining investable cash to ensure no over-spending or leverage.

No Futures - Duration Out of Compliance				
Security Type	Market Value	Weight	Duration	Weighted Duration
Government Portfolio	\$ 4,500,000,000	91%	5.15	4.68
Investable Cash	\$ 450,000,000	9%	0.00	0.00
UST Futures Notional	\$ -	0%	6.26	0.00
<b>Total</b>	<b>\$ 4,950,000,000</b>	<b>100%</b>		<b>4.68</b>
Benchmark Duration				5.94
Portfolio v. BM Difference				(1.26)
<b>Difference % (Maximum Allowed = +/- 20%)</b>			<b>1</b>	(21)%
Accounting Summary				
Margin Cash	\$ -	Margin at Exchange		
Restricted Cash	\$ -			
<b>"Bond-ized" Cash</b>	<b>\$ -</b>	<b>UST Futures Position Offset</b>		
UST Futures Contracts Owned		-		
Contract Value (Per Contract)		\$124,766		
Total Margin Deposit Per Contract		\$ 1,450		

Add Futures - Duration In Compliance				
Security Type	Market Value	Weight	Duration	Weighted Duration
Government Portfolio	\$ 4,500,000,000	91%	5.15	4.68
Investable Cash <b>4</b>	\$ 300,281,250	6%	0.00	0.00
UST Futures Notional	\$ 149,718,750	3%	6.26	0.19
<b>Total</b>	<b>\$ 4,950,000,000</b>	<b>100%</b>		<b>4.87</b>
Benchmark Duration				5.94
Portfolio v. BM Difference				(1.07)
<b>Difference % (Maximum Allowed = +/- 20%)</b>			<b>2</b>	(18)%
Accounting Summary				
Margin Cash	\$ 1,740,000	Margin at Exchange		
Restricted cash	\$ 147,978,750			
<b>"Bond-ized" Cash</b> <b>3</b>	<b>149,718,750</b>	<b>UST Futures Position Offset</b>		
UST Futures Contracts Owned		1,200		
Contract Value (Per Contract)		\$124,766		
Total Margin Deposit Per Contract		\$ 1,450		

## Appendix A

### Mark-to-Market Effect on Unlevered Treasury Futures Position

- 1 Scenario: Severe market stress event causes 25% value decline across all U.S. Treasury securities.
- 2 Variation margin cash outflow to Futures Exchange reflects mark-to-market loss.
- 3 Restricted cash balance declines to reflect decline in notional value of futures position.
- 4 Reflecting unlevered position (due to 100% cash offset relative to notional futures position), total portfolio value does not fall more than 25%.

Maximum 10% Futures Position		
Security Type	Market Value	Weight
Government Portfolio	\$ 4,008,358,835	90%
Investable Cash	\$ 95,156	0%
UST Futures Notional	\$ 449,904,844	10%
<b>Total</b>	<b>\$ 4,458,358,835</b>	<b>100%</b>
Accounting Summary		
Initial Margin	\$ 5,228,700	Margin at Exchange
Restricted Cash	\$ 444,676,144	Restricted By Compliance
<b>"Bond-ized" Cash</b>	<b>\$ 449,904,844</b>	<b>UST Futures Position Offset</b>
UST Futures Contracts Owned		3,606
Contract Value (Per Contract)		\$124,766
Total Margin Deposit Per Contract		\$ 1,450

Treasury And Futures Decline 25% in Value			
Security Type	Market Value	Weight	Change
Government Portfolio	\$ 3,006,269,126	90%	1 (25)%
Investable Cash	\$ 95,156	0%	0 %
UST Futures Notional	\$ 337,428,633	10%	1 (25)%
<b>Total</b>	<b>\$ 3,343,792,916</b>	<b>100%</b>	(25)% 4
Accounting Summary			
Variation Margin	2 (112,476,211)	Cash Outflow to Exchange	
Initial Margin	\$ 5,228,700	Margin at Exchange	0 %
Restricted Cash	\$ 332,199,933	Restricted By Compliance	(25)% 3
<b>"Bond-ized" Cash</b>	<b>\$ 337,428,633</b>	<b>UST Futures Position Offset</b>	
UST Futures Contracts Owned		3,606	0 %
Contract Value (Per Contract)		\$ 93,574	(25)%
Total Margin Deposit Per Contract		\$ 1,450	0 %

# Appendix B

## INV 401: Strategic Role of Fixed Income for OPERF

### **POLICY**

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

### **PROCEDURES**

#### **A. PURPOSE**

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

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

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

#### **B. POLICY OBJECTIVES**

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

#### **C. STRATEGIES**

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

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

#### D. PERMITTED HOLDINGS

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

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

#### E. DIVERSIFICATION

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

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

#### F. ABSOLUTE RESTRICTIONS

Investments in the following are prohibited:

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

## SAMPLE FORMS, DOCUMENTS,OR REPORTS

## TAB 8 – Asset Allocations & NAV Updates

## Asset Allocations at December 31, 2016

OPERF	Regular Account					Variable Fund	Total Fund		
	Policy	Target <sup>1</sup>	\$ Thousands	Pre-Overlay	Overlay	Net Position	Actual	\$ Thousands	\$ Thousands
Public Equity	32.5-42.5%	37.5%	26,342,527	37.7%	304,292	26,646,819	38.1%	597,144	27,243,964
Private Equity	13.5-21.5%	17.5%	13,873,866	19.9%		13,873,866	19.9%		13,873,866
<b>Total Equity</b>	<b>50.0-60.0%</b>	<b>55.0%</b>	<b>40,216,393</b>	<b>57.6%</b>	<b>304,292</b>	<b>40,520,685</b>	<b>58.0%</b>		<b>41,117,830</b>
Opportunity Portfolio	0-3%	0.0%	1,472,796	2.1%		1,472,796	2.1%		1,472,796
Fixed Income	15-25%	20.0%	13,686,839	19.6%	1,195,126	14,881,965	21.3%		14,881,965
Real Estate	9.5-15.5%	12.5%	8,663,335	12.4%	(29,200)	8,634,135	12.4%		8,634,135
Alternative Investments	0-12.5%	12.5%	4,033,611	5.8%		4,033,611	5.8%		4,033,611
Cash <sup>2</sup>	0-3%	0.0%	1,781,387	2.6%	(1,470,218)	311,169	0.4%	8,905	320,075
<b>TOTAL OPERF</b>		<b>100%</b>	<b>\$ 69,854,362</b>	<b>100.0%</b>	<b>\$ -</b>	<b>\$ 69,854,362</b>	<b>100.0%</b>	<b>\$ 606,050</b>	<b>\$ 70,460,412</b>

<sup>1</sup>Targets 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.

<sup>2</sup>Includes cash held in the policy implementation overlay program.

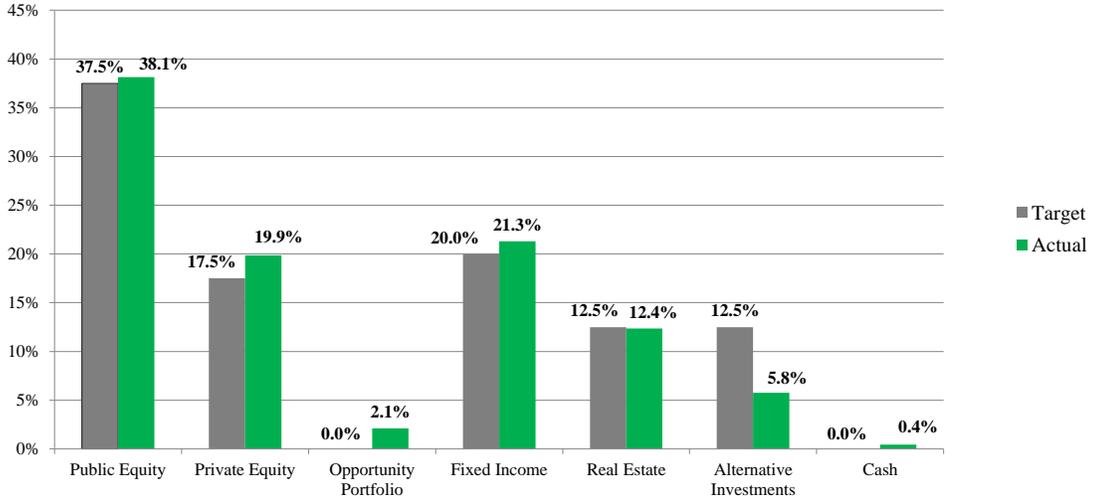
SAIF	Policy	Target	\$ Thousands	Actual
<b>Total Equity</b>	<b>7-13%</b>	<b>10.0%</b>	<b>473,930</b>	<b>10.1%</b>
Fixed Income	80-90%	85.0%	4,170,242	89.2%
Real Estate	0-7%	5.0%	0	0.0%
Cash	0-3%	0%	29,291	0.6%
<b>TOTAL SAIF</b>			<b>\$ 4,673,464</b>	<b>100.0%</b>

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

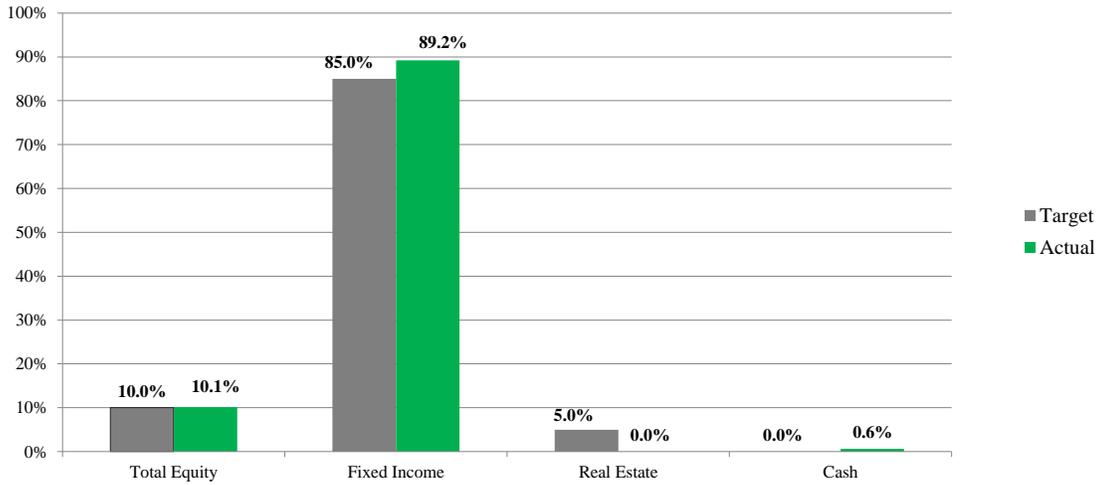
SOUE	Policy	Target <sup>3</sup>	\$ Thousands	Actual
Global Equities	65-75%	70%	1,533	71.1%
<b>Growth Assets</b>	<b>65-75%</b>	<b>70%</b>	<b>1,533</b>	<b>71.1%</b>
Fixed Income	25-35%	30%	621	28.8%
Cash	0-3%	0%	2	0.1%
<b>Diversifying Assets</b>	<b>25-35%</b>	<b>30%</b>	<b>623</b>	<b>28.9%</b>
<b>TOTAL SOUE</b>			<b>\$ 2,156</b>	<b>100.0%</b>

<sup>3</sup>Revised asset allocation adopted by OIC, March 2015.

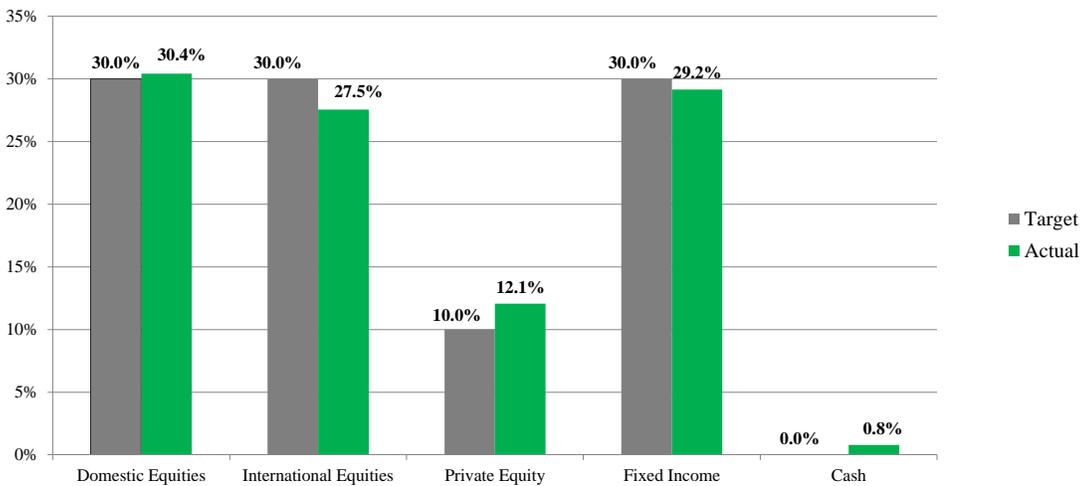
### OPERF Asset Allocation



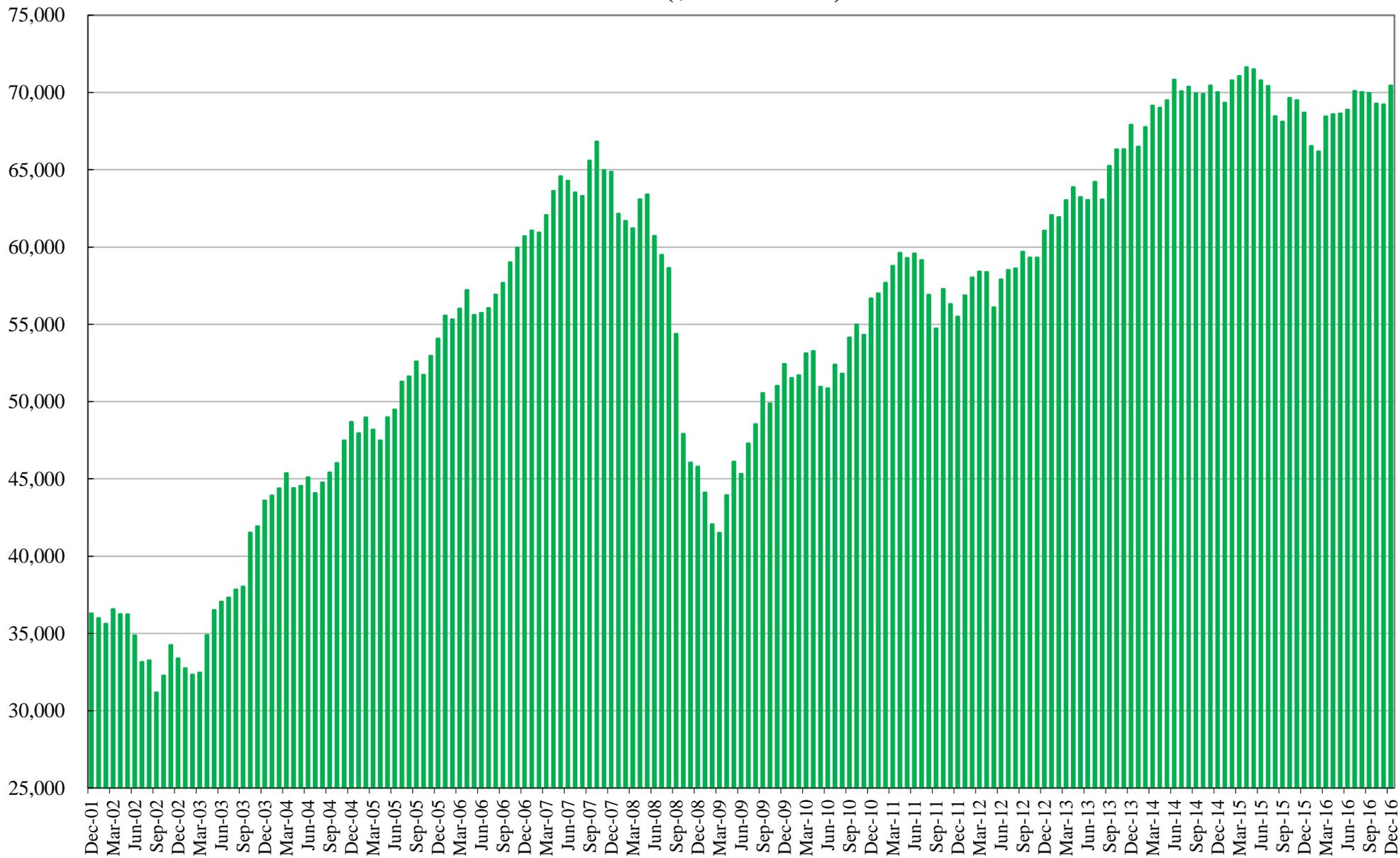
### SAIF Asset Allocation



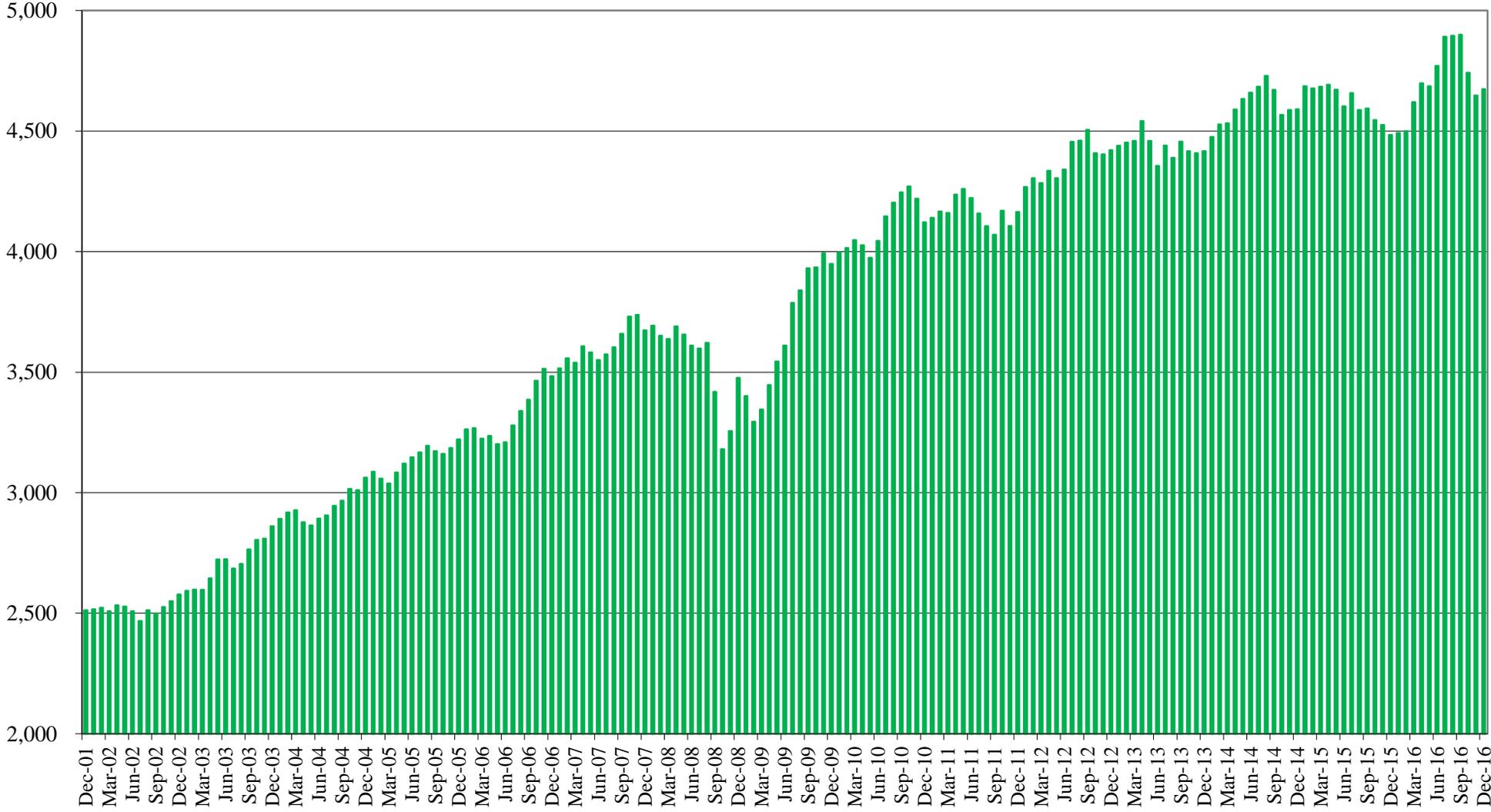
### CSF Asset Allocation



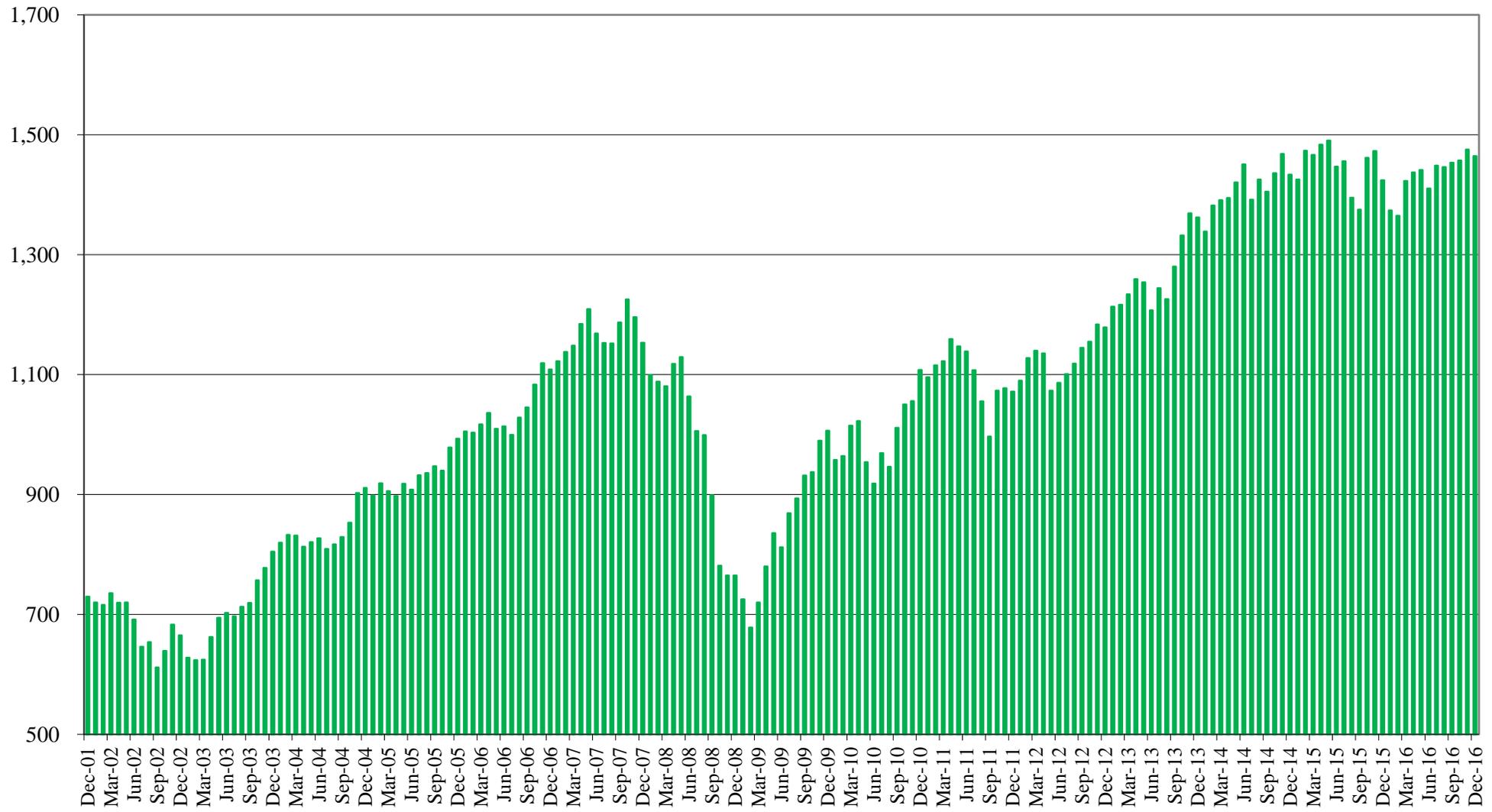
**OPERF NAV**  
**15 years ending December 2016**  
**(\$ in Millions)**



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



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



## TAB 9 – Calendar — Future Agenda Items

## **2016/17 OIC Forward Calendar and Planned Agenda Topics**

- March 15, 2017:** Private Equity Manager Recommendations (2)  
Real Estate Manager Recommendation  
OPERF Overlay Review  
Securities Lending Update  
OPERF Currency Project Update  
Q4 2016 OPERF Performance & Risk Report
- April 26, 2017:** Private Equity Manager Recommendation  
Real Estate Reporting & Valuation Consultant Recommendation  
OPERF Asset Allocation & Capital Market Assumptions Update  
IAP Recommendation  
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:** Corporate Governance Update  
OIC Policy Updates  
Investment Division Update  
OIC Strategic Issues Discussion
- September 20, 2017:** Q2 2017 OPERF Performance & Risk Report  
OITP Review
- 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