Private Asset Class Roles and Benchmarks

April 17, 2017
What We Hope to Accomplish Today

• Review – Asset Liability Management Timeline (Progress and Goal)

• Discuss – Benchmark Selection for Private Asset Classes
Private Asset Class Roles and Benchmarks

2017-18 ALM Timeline | Board Review & Decision Making

January Board Offsite
**Public Asset: Roles, Segments, Benchmarks**
- Global Equity, Global Fixed Income, Inflation

April Investment Committee (information)
**Private Asset: Roles and Benchmarks**
- Real Assets, Private Equity

May Investment Committee (Action)
**Private Asset: Roles and Benchmarks**
- Private Equity, Real Assets

July Board Offsite
**Alternative Strategic Asset Allocation Approach**
- Use of Leverage

June Investment Committee
**Adopt Capital Market Assumptions**

November ALM Board Workshop
**Strategic Asset Allocation Approach**
- Current Approach: Asset Class
- Alternative Approach: Asset Segment

February Board Meeting
**Adopt Strategic Asset Allocation Policy Portfolio**
- Current Approach: Asset Class
- Alternative Approach: Asset Segment

July Implementation
**Strategic Asset Allocation Policy Portfolio**
Real Assets
Real Assets | Introduction

• Maintain the Real Asset role adopted in April 2016
  – The role of Real Assets is to own real assets with stable cash yield and act as an economic diversifier to equity risk.
    • Diversification
    • Income
    • Inflation

• Recommend two modifications to Real Assets within the Strategic Asset Allocation
  – Consolidation of segments
  – Benchmark
Real Assets | Recommendation

Consolidation of segments

- **Current:**
  - Forestland 1%
  - Infrastructure 1%
  - Real Estate 11%

- **Proposed:**
  - Real Assets 13%
Real Assets | Why

- Focus Strategic Asset Allocation on asset classes / segments with sufficient materiality

- Underwrite in Real Estate, Infrastructure and Forestland seeking similar underlying investment characteristics

- Retain the ability of Real Assets to invest in Infrastructure and Forestland

- Build common focus for the Real Assets team within INVO
**Existing Asset Classes** | **Total Fund Investment Policy**

**From:**
Current Asset Class Allocation

- **Global Equity:** 46%
- **Private Equity:** 8%
- **Global Fixed Income:** 20%
- **Real Estate:** 11%
- **Infra. & Forest:** 2%
- **Inflation:** 9%
- **Liquidity:** 4%

**Towards:**
Reference Portfolio Construction

- **Global Fixed Income:** 20%
- **Real Assets:** 13%
- **Real Estate:** 11%
- **Infra & Forest:** 2%
- **Inflation:** 9%
- **Liquidity:** 4%
- **Growth:** 54%
Real Assets | Recommendation

**Benchmark**

- **Current:**
  - National Council of Real Estate Investment Fiduciaries (“NCREIF”) Open-End Diversified Core Equity (“ODCE”)

- **Proposed:**
  - MSCI Investment Property Databank (“IPD”) (U.S. Core – Fund Level)
Real Assets | Why

- “NCREIF ODCE” and “IPD U.S. Core – Fund Level” measure nearly identical exposures

- Simplify vendor relationships (BarraOne provider)

- Potential to extend to Infrastructure and Global Real Estate should these segments become material enough to warrant separation
Real Assets | Net Returns – IPD (US Core Fund Level) vs. ODCE (Fund Level)
Private Equity
**Private Equity** | Introduction

- Partially address challenges identified during November 2015 Private Equity workshop

- Recommend three modifications to Private Equity within the Strategic Asset Allocation
  - Role
  - Consolidation into a growth related asset segment
  - Benchmark
# Addressing Private Equity Challenges (11/2015)

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Initiative to Address Challenge</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Controlling Private Equity Exposure</td>
<td>• Liquid Public Market Proxy</td>
</tr>
<tr>
<td>• Difficult to Identify Sources of Risk</td>
<td>• Private Equity Accounting and Reporting Solution (PEARS)</td>
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<tr>
<td>• Complex, Higher, and Non-transparent fees</td>
<td></td>
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<tr>
<td>• Determining Appropriate Benchmark</td>
<td>• Role of Private Markets</td>
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<tr>
<td>• Role of Private Markets</td>
<td>• Benchmark Evaluation and Discussion</td>
</tr>
<tr>
<td>• Benchmark Evaluation and Discussion</td>
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<tr>
<td>• Predicting Cash Flows</td>
<td>• Liquidity – Operations</td>
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`Private Asset Class Roles and Benchmarks`
Private Equity | Potential Questions

- **Eliminating Private Equity?**
  - No, an important part of investment portfolio

- **Benchmark shift due to underperformance?**
  - No, making an explicit link to the investible alternative (opportunity cost)

- **Eliminating excess return expectation in the capital market assumptions?**
  - No, the excess return expectation would be extrapolated to this growth segment (implies target weight)

- **Reduce transparency?**
  - No, maintain commitment to all enhanced reporting and disclosure
Private Equity | Recommendation

<table>
<thead>
<tr>
<th>Role</th>
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- **Current:**
  - Private equity allocations are a means of enhancing equity returns through a value added approach to investment management of a diverse set of portfolio companies and to capture the illiquidity premium. The major driver for returns is appreciation with negligible cash yield.
  - *High Growth Risks*
  - *Illiquid*

- **Proposed:**
  - Private equity allocations are a means of enhancing equity returns through an active, value-added approach. The major driver for returns is appreciation, aided by leverage, with negligible cash yield.
  - *Growth*
Private Equity | Recommendation

Incorporation into growth related asset segment

- **Current:**
  - Private Equity a distinct, stand alone asset class

- **Proposed:**
  - Merge Private Equity with capitalization weighted Global Equity to form a combined growth related segment
Private Equity | Why

- Focus management of the allocation to Private Equity at the total fund level
- Enable potential portfolio construction capability to offset idiosyncratic regional, sector and company exposure
- Enable search for additional tools to generate the expected excess return
- Link private equity commitments to funding source
- Build common focus for growth-oriented teams within INVO
**Private Equity** Consolidation of growth related segments

From: Current Asset Class Allocation

- Global Equity: 46%
- Global Fixed Income: 20%
- Real Estate: 11%
- Private Equity: 8%
- Inflation: 9%
- Liquidity: 4%
- Infra. & Forest: 2%

Towards: Consolidated Growth Bucket

- Growth: 54%
- Private Equity: 20%
- Global Fixed Income: 20%
- Real Assets: 13%
- Inflation: 9%
- Liquidity: 4%
## Private Equity

Who else consolidates Public and Private Equity

<table>
<thead>
<tr>
<th>Peer</th>
<th>Reference Portfolio Equity Allocation</th>
<th>Actual Equity Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ontario Teachers’ Pension Plan</td>
<td>42%&lt;sup&gt;1&lt;/sup&gt;</td>
<td>38%&lt;sup&gt;4&lt;/sup&gt;</td>
</tr>
<tr>
<td>Canadian Pension Plan Investment Board</td>
<td>72%&lt;sup&gt;2&lt;/sup&gt;</td>
<td>52%&lt;sup&gt;5&lt;/sup&gt;</td>
</tr>
<tr>
<td>New Zealand Superannuation Fund</td>
<td>85%&lt;sup&gt;3&lt;/sup&gt;</td>
<td>75%&lt;sup&gt;6&lt;/sup&gt;</td>
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   Strategic Portfolio Asset Class is the Aspirational composition for the Investment Portfolio and carried an equity target weight of 62%
4. As of 12/31/2016
5. As of 03/31/2016
6. As of 06/30/2016 and excludes the impact of any strategic tilts.
7. Includes both Public Equity and Private Equity
Private Equity Recommendation

Benchmark

- **Current:**
  - 67% FTSE U.S. Total Market + 33% FTSE All World ex U.S. + 300 basis points
    - Lagged one quarter
    - Attempted to reflect actual geographic exposures

- **Proposed:**
  - FTSE All World, All Capitalization (Global Equity) + Return Premium (TBD)
### Example 2016 Capital Markets Assumptions

<table>
<thead>
<tr>
<th></th>
<th>Arithmetic Return</th>
<th>Geometric Return</th>
<th>Volatility</th>
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<tbody>
<tr>
<td></td>
<td>Public Equity</td>
<td>Private Equity</td>
<td>Arith. Rtn</td>
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<tr>
<td>Wilshire(1)</td>
<td>7.8%</td>
<td>12.1%</td>
<td>4.3%</td>
</tr>
<tr>
<td>Meketa</td>
<td>9.7%</td>
<td>13.2%</td>
<td>3.5%</td>
</tr>
<tr>
<td>PCA</td>
<td>9.1%</td>
<td>12.1%</td>
<td>3.0%</td>
</tr>
<tr>
<td>JP Morgan</td>
<td>8.8%</td>
<td>10.6%</td>
<td>1.7%</td>
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<tr>
<td>BNY</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Callan(2)</td>
<td>8.6%</td>
<td>12.5%</td>
<td>3.8%</td>
</tr>
<tr>
<td>Blackrock(2)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td><strong>Median:</strong></td>
<td><strong>3.4%</strong></td>
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1. Based on email request on 11/1/2016
2. No Global Equity estimate given. Used a blend of 50% Broad US Equity and 50% Global ex-US as the estimate for Public Equity asset class for both geometric return and volatility
Private Equity Relative Performance | Problem with Compounding

Cumulative Return: StateStreet Private Equity Index versus CalPERS Private Equity Benchmark

- Data Source: CalPERS PE Benchmark (StateStreet); SSGX PE (SSGX); Quarterly data from Q2 2011 to Q3 2016
- CalPERS PE Bench: 67% FTSE US TMI + 33% FTSE AW ex-US + 3%
Appendix
### Appendix: Role Definitions

<table>
<thead>
<tr>
<th>Role</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Income</td>
<td>Generate current cash flow</td>
</tr>
<tr>
<td>Inflation</td>
<td>Provide protection against inflation</td>
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<tr>
<td>Diversification</td>
<td>Reduce risk associated with public equity exposure</td>
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<tr>
<td>Growth</td>
<td>Increase sensitivity to economic growth</td>
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<tr>
<td>Liquidity</td>
<td>Ability to convert assets into cash</td>
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Private Equity | Target versus Actual Allocation

Historical Private Equity Strategic Allocation & Actual % Holdings

- **PE Holdings as a % of the Total Fund**
- **Strategic Allocation to PE**

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<tbody>
<tr>
<td>PE Alloc (%)</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td>10</td>
<td>12</td>
<td>14</td>
<td>16</td>
<td>14</td>
<td>16</td>
<td>14</td>
<td>16</td>
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<td>16</td>
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Private Equity | Pro-cyclicality of Commitments

Historical Private Equity Commitment by Vintage Year & S&P 500 Index

- Commitment by Vintage Year (Left Axis)
- S&P 500 Index (Right Axis)
Private Equity | High Risk Levels

Private Equity - Realized Tracking Error - 1 yr

[Graph showing realized tracking error for Private Equity from 1991 to 2017]
Private Asset Class Roles and Benchmarks

Private Equity | Historical Private Equity Premium

Rolling 10 YR Annualized Compound Return

- ACWI Developed
- S&P 500
- FTSE All World
- Russell 3000
- Public Bench

Premium (Private Equity - Public Index)

Data Sources: Public Index data (Bloomberg), Private Equity Index (SSGX), PERS Global Bench (State Street) using quarterly horizon return data from Q4 1996 to Q2 2016
Private Equity | Historical Private Equity Premium

Rolling 5 YR Annualized Compound Return

- ACWI Developed
- S&P 500
- Russell 3000
- FTSE All World
- Public Bench
- 3% Premium

- Data Sources: Public Index data (Bloomberg), Private Equity Index (SSGX), PERS Global Bench (State Street) using quarterly horizon return data from Q4 1996 to Q2 2016