Private Equity Overview
Texas Municipal Retirement System
Private Equity Introduction

• Institutional investors pursue private equity investments primarily due to higher expected returns than traditional publicly-traded equities
  – RVK’s long-term expected return forecasts are*:
    • Private Equity 11.00% vs. Global Public Equity 7.90%

• The potential for higher returns is accompanied by tradeoffs including:
  – Lower liquidity and transparency
  – Increased portfolio complexity
  – RVK’s long-term expected risk forecasts are*:
    • Private Equity 29.00% vs. Global Public Equity 18.35%

• It is important for investment decision makers to be educated on the many unique aspects of private equity

*Based on RVK’s 2014 Capital Markets Assumptions
What is Private Equity?

• Investments made up of privately held businesses that do not trade on an exchange, are illiquid, and have a long investment horizon

• Unique cash flow structure requiring paced cash funding and distributions
  - Capital is called “as needed”, slowly over a period of years, and distributions occur irregularly as investments are sold

• Investments are long-term, typically 10 years or more, with limited ability to liquidate before the termination of a partnership
Private Equity Strategies

**Venture Capital**
- Rapid revenue growth
- Approaching profitability
- Still building out management team
- 3 out of 10 “hit rate”

Sample Firm: Sequoia Capital
Sample Investment: Google

**Distressed Debt**
Purchase of troubled companies’ debt (e.g., high yield, bank loans, trade claims) at a fraction of par value. Differing strategies with respect to levels of control.

Sample Firm: Oaktree Capital
Sample Investment: Lehman Brothers Debt

**Buyouts**
- Stable, possibly growing revenue
- Generates consistent cash flow
- Seasoned management team
- 8 out of 10 “hit rate”

Sample Firm: KKR
Sample Investment: HCA, Inc.

**Special Situations**
Growth capital investments, industry-specific funds, bankruptcy/turnarounds and mezzanine financing.

Sample Firm: Sun Capital
Sample Investment: Boston Market
Other Private Equity Strategies

• **Secondary Investments**
  – Purchase of existing partnership interests on the secondary market
  – Can be used to quickly obtain exposure and/or diversification
  – Proper due diligence and price are key determinants of success in the secondary market

• **Co-Investments**
  – Investments made directly into private equity companies, typically made alongside an experienced lead investor
  – Co-investments are typically more passive than a lead investor, but will usually have equal economic terms
Why Invest In Private Equity?

• The private equity asset class provides some limited additional diversification benefits to a broadly diversified portfolio

• The primary benefits to the asset class is generating alpha above public market returns
  – RVK currently estimates that the private equity asset class will return a premium of 310 basis points over global public market returns
  – Observed volatility (quarterly market value fluctuations) of the asset class has been lower than large cap equity markets

• Private equity investments provide a way to access industries, sectors and products not easily available to public markets

• Private equity investing allows skilled managers to effect meaningful change to businesses, thus improving value
Unique Considerations

- **Illiquidity**
  - Private equity investments consist predominantly of holdings in privately held businesses with limited marketability prior to an exit (typically via an IPO or acquisition)

- **Long Investment Horizon**
  - Private equity fund investments are considered long term, with a horizon of 10 years or more

- **Cash Flow Uncertainty**
  - Cash flows are dependent upon market dynamics and can be difficult to forecast
  - Capital calls depend upon the availability of investment opportunities, while distributions depend on the availability of investment exits

- **Lower Transparency**
  - Private equity firms typically raise capital with limited insight into the actual investments that will be included with the fund
  - Therefore, developing comfort with managers’ skill, as opposed to underlying investments, is essential

- **Higher Fees**
  - Private equity fee structures are higher than traditional asset classes
  - Typical fees to underlying managers include management fees and carried interest, or incentive fee on the investment gains
  - Fees are typically based on committed capital, regardless of the amount of capital called
Historical Private Equity Returns

Source: Thomson Reuters.
Private Equity performance data includes vintages between 1980 and 2012.
Performance is calculated quarterly.

Investment Performance by Fund Type and Time Period
As of September 30, 2013

Source: Thomson Reuters.
Private Equity performance data includes vintages between 1980 and 2012.
Performance is calculated quarterly.
Portfolio Construction
Vintage Year Diversification

- Vintage years exhibit varying levels of return
  - As the graph below illustrates, not participating in specific years can have a significant effect on overall return
- To achieve the long-term expected return on the private equity asset class, it is important to maintain consistent exposure in each vintage year
Portfolio Construction
The Importance of Manager Selection

Annualized Performance Differential (25th - 75th percentile)
January 1, 1980 - September 30, 2013

<table>
<thead>
<tr>
<th>Performance Difference</th>
<th>All Private Equity</th>
<th>Equity Funds</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.62%</td>
<td>15.21%</td>
<td>12.50%</td>
</tr>
<tr>
<td>-1.59%</td>
<td></td>
<td>10.23%</td>
</tr>
<tr>
<td>0%</td>
<td></td>
<td>2.26%</td>
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</tbody>
</table>

Performance

25th Percentile 75th Percentile Performance Difference

All Private Equity Source: Thomson Reuters – All Private Equity Funds with vintages between 1980 and 2012
Equity Funds Source: Investment Metrics US Equity Funds (SA+CF+MF)
Private Equity performance is represented by the annualized since inception internal rate of return.
Private Equity Terms

• Private equity funds typically have a fixed ten-year term with possible one to two year extensions; fund of funds typically have twelve-year terms with two to three year extensions

• The investment period is generally around five years for direct funds and three to five years for fund-of-funds. This is the time when a fund actively seeks out and invests in new opportunities

• Most of the capital will be drawn and most of the management fees and expenses will also be paid during the investment period.
Private Equity Fund Lifecycle

**Observations:**

- The fund is fully funded between years eight and nine (PIC).
- Contribution and distribution schedules cause the amount of private equity exposure to peak between years five and six, at approximately 80% of the Commitment amount (RVPI).
- Sample PE Fund returned slightly above 1.8X Commitment (DPI).
Private Equity Commitment Budget

• Private Equity commitments are drawn down over time and distributions are made as a fund matures

• As a result, over-committing is required in order to meet a planned allocation target
  – Typically 1.5X – 2X target
  – Follow-on commitment needed
    • To maintain allocation exposure
    • Vintage year diversification

• Because the allocation level of the portfolio declines with distribution activity, a regular commitment plan is required to establish and maintain appropriate commitment targets

• Additional allocation factors to consider:
  – Total fund growth (net of spending rate)
  – Timeline to reach target allocation
  – Annual review of commitment pace and budget
Pacing Study

Pacing Study provided by RVK:
- Evaluates current portfolio status versus target

- Considers the following factors*:
  - Paid in Capital (Contributed Funds/Cash In)
  - Distributed Capital (Distributed Funds/Cash Out)
  - Valuation (Capital Account Valuation)
  - Allocation %

- Takes into account the annualized growth rate for the overall total composite

- Presents a commitment plan with recommendations on private equity program structure and a proposed commitment budget

* These variables are estimated using modified historical pacing patterns based upon the historical trends of the asset class and expected returns for each sub-segment.
Investment Structure Options

• **Off-the-Shelf Fund-of-Funds (FoFs)**
  – A fund-of-funds manager creates a portfolio of underlying funds or managed accounts, resulting in a single, diversified investment vehicle for a number of investors (commingled fund vehicle)

• **Separate Account Fund-of-Funds (FoFs)**
  – A fund-of-funds manager creates a customized portfolio of underlying funds or managed accounts, tailored to a single client’s investment goals (separate account)

• **Specialist Advisor**
  – A consultant specializing in private equity investing creates a customized portfolio of underlying funds
  – This consultant can be given the discretion to make investment decisions, or it can be a non-discretionary mandate, with the client making the final structure and fund selection decisions

• **Direct Investment**
  – The “Do it Yourself” approach. Client uses internal expertise and appropriate systems to create a diversified portfolio of single-strategy and multi-strategy funds
Continuum of Implementation Approaches

- Off-the-Shelf Fund-of-Funds Approach
- Separate Account Fund-of-Funds Approach
- Specialist Advisor Approach
- Direct Investment Approach

Less Control over Strategy
Less Client Resources Required
Higher Management Costs

Greater Control over Strategy
Greater Client Resources Required
Lower Management Costs
# Implementation Matrix
## Resources and Control

<table>
<thead>
<tr>
<th>Off-the-Shelf FoFs Approach</th>
<th>Separate Account Fund of One Approach</th>
<th>Specialist Advisor Approach</th>
<th>Direct Investment Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Discovery, Evaluation, and Selection</strong></td>
<td>FoFs Manager’s Staff</td>
<td>Fund of One’s Manager’s Staff</td>
<td>Specialist Advisor’s Staff &amp; Internal Staff Approval and/or Delegation by Board/Committee</td>
</tr>
<tr>
<td><strong>Diversification</strong></td>
<td>Instantaneous and Extensive</td>
<td>Likely Faster and Extensive</td>
<td>Likely Slower and Builds Over Time, but can be Extensive</td>
</tr>
<tr>
<td><strong>Cost Effectiveness</strong></td>
<td>Requires an additional FoFs Manager fee</td>
<td>Requires an additional discretionary Manager fee – potentially lower than an Off-the-Shelf FoFs</td>
<td>Requires an additional Advisor fee – likely much lower than a FoFs Manager fee. Can be negotiated based on level of service and discretion desired.</td>
</tr>
<tr>
<td><strong>On-going Risk Monitoring</strong></td>
<td>FoFs Manager’s Staff</td>
<td>Fund of One’s Manager’s Staff</td>
<td>Specialist Advisor’s Staff &amp; Internal Staff</td>
</tr>
<tr>
<td><strong>On-going Performance Monitoring</strong></td>
<td>FoFs Manager’s Staff</td>
<td>Fund of One’s Manager’s Staff</td>
<td>Specialist Advisor’s Staff &amp; Internal Staff</td>
</tr>
<tr>
<td><strong>RVK’s Role</strong></td>
<td>RVK will provide: Search, Evaluation, Due Diligence, and On-going Monitoring of FoFs Managers</td>
<td>RVK will provide: Search, Evaluation, Due Diligence, and On-going Monitoring of Fund of One Managers</td>
<td>RVK will provide: On-going Monitoring and Reporting, and will incorporate investments into total fund asset allocation reviews</td>
</tr>
</tbody>
</table>
Summary

- Private Equity can generate significant value by enhancing returns and improving diversification
  - Unique risks are introduced due to factors such as:
    - Investment illiquidity, cash flow uncertainty, and wide divergence in manager performance

- There are significant challenges that investors face in the successful implementation of an alternative investment program
  - Resources, access, transparency, lack of regulation, etc.

- To manage diversification risk and to maintain access to best in class managers a steady program of pacing capital to private equity opportunities is required

- Proper implementation and manager selection is the key to overcome these challenges
Appendix
Allocation Perspectives

• We estimate that the return will be 310 basis points in excess of the global public equity markets over the long term. Volatility reflects lower liquidity than public markets.

• RVK’s current long-term forecast*:
  – Expected Annual Return of 11.00%
  – Expected Annual Standard Deviation equal to 29.00%

<table>
<thead>
<tr>
<th>Correlation</th>
<th>Int. Duration Fixed Income</th>
<th>Non-Core Fixed Income</th>
<th>Custom Real Return</th>
<th>50/50 Equity</th>
<th>Custom Real Estate</th>
<th>Absolute Return</th>
<th>Inflation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Equity</td>
<td>-0.18 Negative</td>
<td>0.70 Moderate-High</td>
<td>0.43 Moderate</td>
<td>0.75 Moderate-High</td>
<td>0.51 Moderate</td>
<td>0.62 Moderate</td>
<td>0.22 Low</td>
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</table>

*Based on RVK’s 2014 Capital Markets Assumptions
Allocation Perspectives – TMRS
Performance Impact – Forecasted*

• The TMRS final target allocation includes 5% to Private Equity ("PE")

<table>
<thead>
<tr>
<th></th>
<th>Frontier 1</th>
<th>Frontier 2</th>
<th>Current (5/31/2014)</th>
<th>Target</th>
<th>Target ex PE</th>
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<tbody>
<tr>
<td>Min</td>
<td>Max</td>
<td>Min</td>
<td>Max</td>
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<td>Int. Duration Fixed Income</td>
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<td>Global Linkers</td>
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<td>Custom Real Return</td>
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<tr>
<td>50/50 Equity</td>
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<tr>
<td>Custom Real Estate</td>
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<td>ARS</td>
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<td>5</td>
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<td>Private Equity</td>
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<td>0</td>
<td>0</td>
<td>5</td>
<td></td>
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<tr>
<td>Total</td>
<td></td>
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<td></td>
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<td>Max</td>
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<tr>
<td>Capital Appreciation</td>
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<td>Capital Preservation</td>
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<td>Alpha</td>
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<td>0</td>
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<tr>
<td>Inflation</td>
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<td>8</td>
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<tr>
<td>Expected Return</td>
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<td></td>
<td>6.07</td>
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<tr>
<td>Risk (Standard Deviation)</td>
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<td></td>
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<tr>
<td>Return (Compound)</td>
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<td>5.63</td>
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<tr>
<td>Return/Risk Ratio</td>
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<tr>
<td>RVK Expected Eq Beta (LC US Eq = 1)</td>
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<td></td>
<td></td>
<td>0.51</td>
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<tr>
<td>RVK Liquidity Metric (T-Bills = 100)</td>
<td></td>
<td></td>
<td></td>
<td>84</td>
<td></td>
</tr>
</tbody>
</table>

*Based on RVK’s 2014 Capital Markets Assumptions
## Allocation Perspectives – TMRS

### Performance Impact – Trailing Periods

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Index</th>
<th>Allocation</th>
<th>Performance (%) as of September 30, 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2013 YTD</td>
<td>1 Year</td>
</tr>
<tr>
<td>Core Fixed Income</td>
<td>Barclays US Agg Bond Index</td>
<td>30.0%</td>
<td>-1.9</td>
</tr>
<tr>
<td>Non-Core Fixed Income</td>
<td>Non-Core Fixed Income Index*</td>
<td>10.0%</td>
<td>-2.0</td>
</tr>
<tr>
<td>Real Return</td>
<td>Real Return Index*</td>
<td>5.0%</td>
<td>-7.0</td>
</tr>
<tr>
<td>Domestic Equity</td>
<td>Russell 3000 Index</td>
<td>17.5%</td>
<td>21.3</td>
</tr>
<tr>
<td>International Equity</td>
<td>MSCI ACW Ex US IMI (Gross)</td>
<td>17.5%</td>
<td>11.0</td>
</tr>
<tr>
<td>Real Estate</td>
<td>Real Estate Index*</td>
<td>10.0%</td>
<td>9.8</td>
</tr>
<tr>
<td>Absolute Return</td>
<td>HFN FOF Multi-Strat Index (Net)</td>
<td>5.0%</td>
<td>5.2</td>
</tr>
<tr>
<td>Private Equity</td>
<td>Venture Econ All Prvt Eq Index</td>
<td>5.0%</td>
<td>13.7</td>
</tr>
<tr>
<td><strong>Total Fund Composite</strong></td>
<td><strong>Total Fund Composite</strong></td>
<td><strong>100.0%</strong></td>
<td><strong>6.3</strong></td>
</tr>
</tbody>
</table>

### Target Index ex Private Equity

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>2013 YTD</th>
<th>1 Year</th>
<th>3 Years</th>
<th>5 Years</th>
<th>7 Years</th>
<th>10 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target Index</td>
<td></td>
<td>6.4</td>
<td>8.3</td>
<td>7.9</td>
<td>6.9</td>
<td>5.4</td>
<td>7.4</td>
</tr>
<tr>
<td>Total Fund Composite</td>
<td></td>
<td>6.1</td>
<td>7.7</td>
<td>6.8</td>
<td>8.2</td>
<td>6.4</td>
<td>6.6</td>
</tr>
</tbody>
</table>

Total Fund performance shown is gross of fees.
### Allocation Perspectives – TMRS

#### Performance Impact – Calendar Years

<table>
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<tr>
<th>Asset Class</th>
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<th>Allocation</th>
<th>Performance (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core Fixed Income</td>
<td>Barclays US Agg Bond Index</td>
<td>30.0% 30.0%</td>
<td>4.2 7.8 6.5 5.9 5.2 7.0 4.3 2.4 4.3 4.1</td>
</tr>
<tr>
<td>Non-Core Fixed Income</td>
<td>Non-Core Fixed Income Index*</td>
<td>10.0% 10.0%</td>
<td>16.4 1.7 15.5 39.3 -16.1 9.8 13.6 4.5 17.0 22.9</td>
</tr>
<tr>
<td>Real Return</td>
<td>Real Return Index*</td>
<td>5.0% 5.0%</td>
<td>1.7 -5.8 12.7 17.1 -26.8 14.9 3.9 13.7 11.0 21.7</td>
</tr>
<tr>
<td>Domestic Equity</td>
<td>Russell 3000 Index</td>
<td>17.5% 20.0%</td>
<td>16.4 1.0 16.9 28.3 -37.3 5.1 15.7 6.1 12.0 31.1</td>
</tr>
<tr>
<td>International Equity</td>
<td>MSCI ACW Ex US IMI (Gross)</td>
<td>17.5% 20.0%</td>
<td>17.6 -13.9 13.2 44.3 -45.6 16.6 26.9 18.2 22.3 42.7</td>
</tr>
<tr>
<td>Real Estate</td>
<td>Real Estate Index*</td>
<td>10.0% 10.0%</td>
<td>11.5 15.9 16.3 -31.8 -13.8 16.9 18.8 24.1 15.1 10.2</td>
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<td>Absolute Return</td>
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<td>5.0% 5.0%</td>
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<tr>
<td>Private Equity</td>
<td>Venture Econ All Prvt Eq Index</td>
<td>5.0% 0.0%</td>
<td>13.4 9.9 18.3 15.3 -21.7 16.7 21.7 25.1 20.2 19.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Target Portfolio</th>
<th>Performance (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target Index</td>
<td>11.1 11.3 10.0</td>
</tr>
<tr>
<td>Target Index ex PE</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total Fund Composite</td>
<td>10.0 2.4 9.0 10.2 -1.3 7.8 0.8 10.6 12.8 1.7</td>
</tr>
</tbody>
</table>

**Total Fund performance shown is gross of fees.**
Private Equity Performance

- Private Equity investments are challenging to accurately and consistently report meaningful performance characteristics.

- Time-weighted rates of return are generally meaningless for investments that violate key assumptions – including client ability to withdraw funds at any time.

- Assets with a “lock-up” and draw-down funding schedule are more appropriately measured on an individual basis with the Dollar-Weighted Return – Internal Rate of Return (IRR).

- Private Equity performance is also measured in terms of the Total Value to Paid-in Capital (Investment Multiple or TVPI).
Private Equity Fund Lifecycle

- Private Equity commitments are drawn down over time and distributions are made as a fund matures.
  - Most of the capital will be drawn in the first years of a fund’s life, but pace will vary by strategy.
  - Cash distribution activity begins in the later stages of a fund’s lifecycle, with most occurring in years four through ten.

- Such irregular cash activity means dollars committed to the asset class are not simultaneously invested. As a result, over-committing is required in order to meet a planned allocation target.

- Because the allocation level of the portfolio declines with distribution activity, a regular commitment plan is required to establish and maintain appropriate commitment targets.

- RVK meets this objective with an annual Private Equity Pacing Analysis.
Client A

- Has a 6% private equity target allocation
- By over-committing to Sample Fund, the target allocation is reached in year seven, but declines with distribution activity
- Continued investments are necessary to maintain this target allocation
Client B

- Follows a custom commitment budget to maintain the target allocation:

<table>
<thead>
<tr>
<th>Vintage</th>
<th>US FOF</th>
<th>Non-US FOF</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>$10,000,000</td>
<td>$2,000,000</td>
<td>$12,000,000</td>
</tr>
<tr>
<td>2014</td>
<td>$10,000,000</td>
<td>$2,000,000</td>
<td>$12,000,000</td>
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<tr>
<td>2015</td>
<td>$10,000,000</td>
<td>$2,000,000</td>
<td>$12,000,000</td>
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<tr>
<td>2016</td>
<td>$10,000,000</td>
<td>$2,000,000</td>
<td>$12,000,000</td>
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