2017 Real Estate Asset Class Review

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Texas Municipal Retirement System
Agenda

I. Program Initiatives: A Year in Review
II. Portfolio, Performance and Compliance
III. Market Update: Real Estate
IV. Conclusions
Section I

PROGRAM INITIATIVES: A YEAR IN REVIEW
Comprehensive Annual Review Process

Why do we conduct annual reviews?

Per the TMRS IPS, comprehensive reviews are to be conducted and documented at least annually. The goal is to formally review managers’ performance, current investment strategy or style relative to that which was communicated, and other issues related to the managers’ organization, personnel, or investment philosophy. The annual review process is part of the IPS manager retention framework.

The Annual Review process holds TMRS Staff accountable for its portfolio management process in order to preempt manager specific, strategic, or other potential problems.
### Accountability in Action

What did we say we were going to do?

**Real Estate & Real Return Initiatives presented in 2016 Annual Review**

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Status</th>
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<tbody>
<tr>
<td>• Allocate greater time resources to manager, market and portfolio research.</td>
<td>✓</td>
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<tr>
<td>Operational resource expansion enabled and Investment Committee process motivated process streamlining and managerial prioritization to ensure this outcome was accomplished. (Slides 8-9)</td>
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<tr>
<td>• Enhance operational &amp; reporting functionalities.</td>
<td>✓</td>
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<tr>
<td>Investment monitoring and annual review processes overhauled in 2016. Operations team was added in 2017, enabling greater time allocation to portfolio management. (Slides 10-12)</td>
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<tr>
<td>• Initiate benchmark review project for real estate, and benchmark enhancement study for real return.</td>
<td>✓</td>
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<tr>
<td>Both projects completed. Recommendations to modify real return benchmark in conjunction with 2017 IPS revisions is anticipated. (See Benchmark Presentation)</td>
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<tr>
<td>• Comprehensively re-evaluate core real estate portfolio and consider rebalancing initiatives. Research Real Estate co-investment opportunities more extensively.</td>
<td>✓</td>
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<tr>
<td>Comprehensive study completed with active decision to not rebalance (Aug. 2016 Internal Memo). Additional core real estate manager recommended in 2016 (March 2016 Board Memo).</td>
<td></td>
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<tr>
<td>• Progress Real Return Portfolio to 100% Allocated: i) add additional public markets real return strategies to fully fund; ii) continue to diversify private real return portfolio.</td>
<td>✓</td>
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<tr>
<td>$800 million of net real return capital deployed in 2016; similar levels expected for 2018. Real Return on an invested basis today is &gt; 9% of TMRS total portfolio. (Real Return Annual Review)</td>
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<tr>
<td>• Research and pursue Real Return co-invest opportunities as deals with strategic fit are sourced.</td>
<td>✓</td>
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<tr>
<td>While deal level co-invests are not currently contemplated, fund style co-invests can be used to blend down fees. One such investment in the pipeline for Q3/Q4 with existing TMRS manager. (Real Return Annual Review)</td>
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Accountability in Action

What did we say we were going to do? (Real Estate)

Pacing Plan: $600mm
Deployed: $600mm

2015 Q1: Courtyard Contracted

2015 Q2: USAI: $250mm
           H/2: $200mm
           TPG: $100mm
           Torchlight: $75mm
           Alcion: $75mm
           Tristan: $40mm
           Harrison St. Securities: <$100mm

2016 Q1: Blackstone: $300mm
           DiVcoWest: $75mm

2016 Q2: Kildare: $100mm

2016 Q3: IC Berkeley: $50mm
           Stockbridge: $50mm

2017 Q1: Re-Up Manager: $100mm
           RE Debt Manager: $75mm

2016 Beg. Market Value:           $1,412mm
2016 End. Market Value:           $2,133mm
Percentage Increase:                 51%
2016 Beg. Portfolio %:               5.99%
2016 End. Portfolio %:               8.50%

Strong planning & execution has put TMRS on the path to achieving strategic investment objectives.
Accountability in Action
What did we say we were going to do? (Real Return)

2015 Q2: Albourne Contraceted
2015 Q3: Target increased from 5% to 10%
2015 Q4: Nuveen: $350mm, Cohen & Steers: $350mm
2016 Q1: AMERRA: $100mm, Orion: $100mm
2016 Q2: Brookfield: $150mm
2016 Q3: Cohen & Steers: $400mm, Colchester: <$325mm>
2016 Q4: Actis: $75mm, Sprott: $70mm
2017 Q1: I-Squared: $150mm
2017 Q2: Blue Sky: $50mm
2017 Q3: Infra Fund A: $150mm
2017 Q4 (prospective): Re-up Fund B: $125mm
Public Markets: $150mm
Co-Investment: $125mm

2015
Pacing Plan: $800mm
Deployed: $800mm

2016
Pacing Plan: $800mm
Deployed: $800mm

2017
Pacing Plan: $600–1,000mm
Deployed: $700–900mm (est.)

2016 Beg. Market Value: $939mm
2016 End. Market Value: $2,301mm
Percentage Increase: 145%
2016 Beg. Portfolio %: 3.99%
2016 End. Portfolio %: 9.17%

Strong planning & execution has put TMRS on the path to achieving strategic investment objectives.
Board approval to hire an Investment Operations Department, in addition to previous resource expansion in both Risk Management and Compliance, has enhanced Asset Class teams’ abilities to introspectively improve investment, execution & monitoring processes.
Accountability in Action
Investment Process Improvements / Investment Committee

Investment Committee was chartered under the direction of TJ Carlson on June 7, 2016.

The IC’s objective is to “To establish and maintain an internal oversight committee for certain investment and operational related decisions and recommendations within the investment department.”

The Committee was designed in conjunction with best practices drawn from both the public fund universe and private industry, creating a forum for the sharing of experience and knowledge, drawing clear lines of accountability and accommodation of dissenting opinions. It is through these mechanisms that TMRS Investment Staff helps ensure the fiduciary duties of Care, Loyalty, and Good Faith are all unquestionably achieved and documented.

The Investment Committee has enhanced the Real Asset manager selection process by providing diverse and informed opinions from other highly qualified investment professionals.

TMRS Investment Committee

TJ Carlson, CIO
Experience: 25 years
Qualifications: MBA, CAIA, CTP

Kristin Qualls, Dir. Equities
Experience: 25 years
Qualifications: Longest Tenure of TMRS Inv. Staff

Dimitry Shishkoff, Dir. Risk Management
Experience: 35 yrs.
Qualifications: Emerging Markets, Higher Mathematics

Marc Leavitt, Dir. Absolute Return
Experience: 22 years
Qualifications: MBA, CAIA

Chris Schelling, Dir. Private Equity
Experience: 17 years
Qualifications: MS Finance, MBA, CAIA

Jason Weiner, Dir. Fixed Income
Experience: 24 years
Qualifications: CFA

Tom Masthay, Dir. Real Assets
Experience: 10 years
Qualifications: MBA, CFA, CAIA, FRM
Manager & Consultant Scorecard Summary:
All 29 manager relationships and 2 consultant relationships assessed are in satisfactory standing.

Contractual Compliance:
All managers have certified compliance with relationship governing documents.

Fees paid summary:

Real Estate:
- Total 2016 Management Fees Paid: $21.1mm
- 2016 Fee % of Wtd. Avg. AUM: 1.25%
- 2016 Fee & Expense % of AUM: 1.45%
- % of 2016 Profits Paid to GP as Incentive: 5.8%
- % of 2016 Profits Paid to GP as Fees & Incentive: 17.2%

Real Return:
- Total 2016 Management Fees Paid (RR): $8.1mm
- 2016 Fee % of Wtd. Avg. AUM: 0.47%
- 2016 Fee & Expense % of AUM: 0.52%

Additional Information:
- Total Manager Meetings (Last Twelve Months): 338
- Person Days of Travel (LTM): 92
- Total Annual Review Page Count: 672

The Annual Review process was re-designed to ease burden of CIO oversight by centralizing and more clearly communicating the asset class activities.
Accountability in Action
Quarterly Monitoring Process Overhaul

**Funds & Capital Approved:**
- **Real Estate**
  - 2016 Mandates Approved: 3
  - 2016 Capital Approved: $475mm
  - 2015-2017 Capital Approved: $1,375mm
  - Total Investment Vehicles: 29

- **Real Return**
  - 2016 Mandates Approved: 5
  - 2016 Capital Approved: $800mm
  - 2015-2017 Capital Approved: $1,945mm
  - Total Investment Vehicles: 11

**2016 Investment Performance:**
- **Real Estate:**
  - TMRS: 10.4%
  - Benchmark: 8.8%
  - Outperformance: 160bps  
  
  Source: Courtland Partners

- **Real Return:**
  - TMRS: 6.9%
  - Benchmark: 4.0%
  - Outperformance: 290bps  
  
  Source: State Street / RVK

**LPAC Activities**
- Total LP Advisory Board Memberships: 27
- 2016-2017 LPAC Meetings/Actions: 42

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The Quarterly Review process was re-designed to encourage clearer lines of communication among team members and create comprehensive audit trails.
Accountability in Action
Manager Monitoring Process Overhaul

The Manager Monitoring Process: “TPS Reports”
Quarterly monitoring process enhanced during 2Q/3Q 2016 to make monitoring process more value-additive from a content perspective, create clear lines of communication for the CIO review of team work product, and more time efficient due to streamlining.

The Real Asset team has been forced to reorganize monitoring efforts in face of growing vehicle count. Formal delegation of manager coverage within the Real Asset Team is the mechanism used to increase the team’s coverage capacities. Delegation within the team has successfully created:

- Greater Intra-team Communication
- Manager Monitoring Redundancy
- Personal Accountability & Job Satisfaction
- Opportunities for Career Advancement
- Clean and Comprehensive Audit Trails
Section II

PORTFOLIO, PERFORMANCE & COMPLIANCE

Performance Review as of December 31, 2016
Real Estate Asset Class Objectives

IPS Stated Objective for the Real Estate Portfolio

“To enhance total return and provide diversification to the overall investment portfolio.”

A primary goal of the annual review presentation is to discuss the real estate portfolio and market conditions relative to IPS stated performance goals:

- Long term performance objective is a real rate of return (adjusted for inflation) of five percent (5%) net of investment management fees. The market environment in which TMRS has launched its real estate portfolio (inception 2011) has enabled exceedance of this goal.

- The real estate portfolio is expected to generate returns, net of all fees and expenses, in excess of their respective indices, over rolling five year investment time horizons.

  TMRS earned 10.4% vs. a benchmark return of 8.8% for calendar year 2016. TMRS earned 2.1% vs. a benchmark return of 1.8% in 1Q 2017.

*Additional investment manager level performance data has been provided for in Courtland’s Q4 reporting which is available in Supplementary Board Materials.
Performance

Peer Universe Analysis – Core Real Estate

<table>
<thead>
<tr>
<th>Core Real Estate Peer Analysis</th>
<th>1 Yr. Net Return</th>
<th>1 yr. ODCE Rank</th>
<th>3 Yr. Net Return</th>
<th>3 Yr. ODCE Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>ODCE Gross Return (TMRS Benchmark)</td>
<td>8.8%</td>
<td>n/a</td>
<td>11.4%</td>
<td>n/a</td>
</tr>
<tr>
<td>ODCE Net Return</td>
<td>7.8%</td>
<td>n/a</td>
<td>10.3%</td>
<td>n/a</td>
</tr>
<tr>
<td>Stockbridge SmartMarkets</td>
<td>9.6%</td>
<td>4</td>
<td>11.1%</td>
<td>14.5</td>
</tr>
<tr>
<td>Invesco US Income Fund*</td>
<td>11.5%</td>
<td>2</td>
<td>12.7%</td>
<td>4</td>
</tr>
<tr>
<td>Harrison St. Core Property*</td>
<td>9.5%</td>
<td>5</td>
<td>9.6%</td>
<td>23</td>
</tr>
<tr>
<td>H2 Credit Partners*</td>
<td>11.8%</td>
<td>2</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>USAA Eagle*</td>
<td>12.6%</td>
<td>1</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Avg. ODCE Universe Rank</td>
<td>n/a</td>
<td>3.0</td>
<td>n/a</td>
<td>14.7</td>
</tr>
<tr>
<td>Percentile</td>
<td>n/a</td>
<td>14.7%</td>
<td>n/a</td>
<td>63.4%</td>
</tr>
</tbody>
</table>

| Total Portfolio Core RE Performance / Avg. Rank | 10.2% | 10.9% |
| Total RE Performance Rank compared to ODCE Net | 3 | 19 |
| Percentile Ranking compared to ODCE Net | 14.6% | 81.3% |

Key Actions & Observations

- Real Estate returns are not cycle agnostic. Manager selection thought processes must take this into account.

- TMRS added four new core open end investment vehicles over 2015 & 2016 and additionally undertook a rebalancing study in Q2 of last year, thus setting the course for 2017. Over this time period TMRS has focused on income through debt strategies and adding business plan execution risk and leverage into the core portfolio.

- In Q1, 6 of 7 of TMRS’ Core open end managers beat the ODCE return on a net basis. It is estimated that 7 of 7 beat the index for Q2 2017.

*Funds are not part of the ODCE, TMRS' benchmark. Rankings presented are hypothetical based on each fund’s given return.
Performance

Peer Universe Analysis – Non-Core Real Estate

<table>
<thead>
<tr>
<th>Non-Core Peer Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td># First Quartile Managers</td>
</tr>
<tr>
<td># 2nd Quartile Funds</td>
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<tr>
<td># 3rd Quartile Funds</td>
</tr>
<tr>
<td># 4th Quartile Funds</td>
</tr>
<tr>
<td>Average Quartile</td>
</tr>
<tr>
<td>Average Quartile (Vintage Certainty Wtd.)</td>
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<tr>
<td>Average Quartile (Certainty &amp; Commitment Wtd.)</td>
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<tr>
<td>Average Percentile</td>
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TMRS’ non-core real estate portfolio has performed serviceably, picking second quartile managers on average.

TMRS has been compensated for the additional risk taken within its non-core real estate portfolio.

<table>
<thead>
<tr>
<th>Risk Taking Spread Analysis*</th>
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<tr>
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<tr>
<td><strong>Value Add</strong></td>
</tr>
<tr>
<td>TMRS Performance</td>
</tr>
<tr>
<td>Spread to ODCE Gross</td>
</tr>
<tr>
<td>Spread to ODCE Net</td>
</tr>
<tr>
<td><strong>Opportunistic</strong></td>
</tr>
<tr>
<td>TMRS Performance</td>
</tr>
<tr>
<td>Spread to ODCE Gross</td>
</tr>
<tr>
<td>Spread to ODCE Net</td>
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</tbody>
</table>

Risk-Adjustment

TMRS’ portfolio benchmark is the ODCE Gross, which reflects returns of moderately leveraged core equity real estate.

It is expected that on a net basis value add (~200bps) an opportunistic (~400bps) real estate will add a return premium to the portfolio.

Based on this concept, it is expected that given TMRS’ non-core real estate portfolio construction choices that its portfolio bears a risk that is targeting approximately 110bps of premium relative to the ODCE Net benchmark.

The net ODCE benchmark incorporates a fee of approximately 100bps.
The TMRS’ portfolio is well diversified by manager & strategy type. Under both metrics, TMRS is in compliance with IPS limitations.

*TMRS may not be invested with greater than 20% exposure to any one manager, 15% to any one investment vehicle, or have less than 50% of real estate exposure dedicated to core holdings. On a market value basis, TMRS is 72% core real estate today.
TMRS is within Geographic Compliance guidelines. The IPS requires professional judgment in the assessment of geographic diversification with a limit of 20% outside the US.

*Source: Courtland Partners; as of Dec. 31, 2016*
TMRS is within Property Type compliance guidelines. No more than 50% of the portfolio may be invested in Office, 45% in multi-family, 35% in Retail, 35% in industrial, and 30% in other property types.

*Source: Courtland Partners; as of Dec. 31, 2016*
Additional IPS Compliance Items

**Leverage** – Portfolio leverage as of Dec. 31, 2016 is 44.9%, under the overall portfolio limitation of 65%. The core portfolio has leverage of 39.0%, Value-Add of 60.1% and Opportunistic of 59.6%. (Source: Courtland Partners)

**Vintage Year Concentration** – TMRS has not breached the 30% concentration limit in any calendar year.

**Public Security Limits** – TMRS is within the public security limitations of the IPS. TMRS currently holds no separately managed accounts of public securities.

**Commercial Mortgage Limitation** – TMRS is in compliance of the commercial mortgage limitation. TMRS holds no commercial mortgages in separately managed accounts.

**Co-Investment** – TMRS is within co-investment guidelines. TMRS has no real estate co-investments.

**Valuation Policy** – TMRS’ managers are in compliance with IPS valuation policy requirements.
Section III

MARKET UPDATE: REAL ESTATE
Recent shifts in the real estate market have appreciation coming closer to the long term trend where income comprises most of the return.

* Data Source: NCREIF
Commercial property valuations have reached historical peak levels but declining year over year transaction volumes creates doubt that this trend can continue.

* Data Source: Bloomberg Monthly Index Data (12/31/2000 - 5/31/2017)
Occupancy and rental growth are healthy with recent news being mostly positive, but the rate of growth continues to decelerate.

* Data Source: Green Street Advisors (top 30 US markets, 4 major sectors on equal weighted basis)
The US consumer is still the driving force behind the economy, the relative buying power from savings and improved personal balance sheets has not translated to increased demand in credit.
The “European” real estate market is really a conglomeration of many separate markets with different exposures and discrete economic cycles.

Economic indicators remain sluggish as the Eurozone comes through a period of political uncertainty.

* Data Source: Cushman & Wakefield, Bloomberg
Section IV

CONCLUSIONS
Conclusions

• Since 2015, the TMRS Real Estate portfolio has ramped up to fully allocated on a committed basis and nearly at target on an invested basis. As such, portfolio management decisions shift to rebalancing among core managers, whether or not to invest again with TMRS’ non-core managers, and considerations for fewer new managers entering the portfolio.

• TMRS’ historical performance has fairly compensated TMRS for the risk exposures taken on. Manager selection has been serviceable to date, however, the team is constantly searching for ways to improve its investment processes.

• Real estate transaction volumes and the returns on TMRS’ real estate benchmark have come down over the prior year. Expectations for real estate returns for the next five years are likely lower than that experienced over the prior 5 years.
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