

2020 Real Estate & Real Return Asset Class Review

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August 20–21, 2020



Agenda

Annual Review Process Introduction

- I. Process Part I: Procedural Oversight
- II. Process Part II: Outcome Measurement
- III. Process Part III: Implementation

Appendix I: Market Update

Introduction: Annual Review Process

Why do we conduct annual reviews?

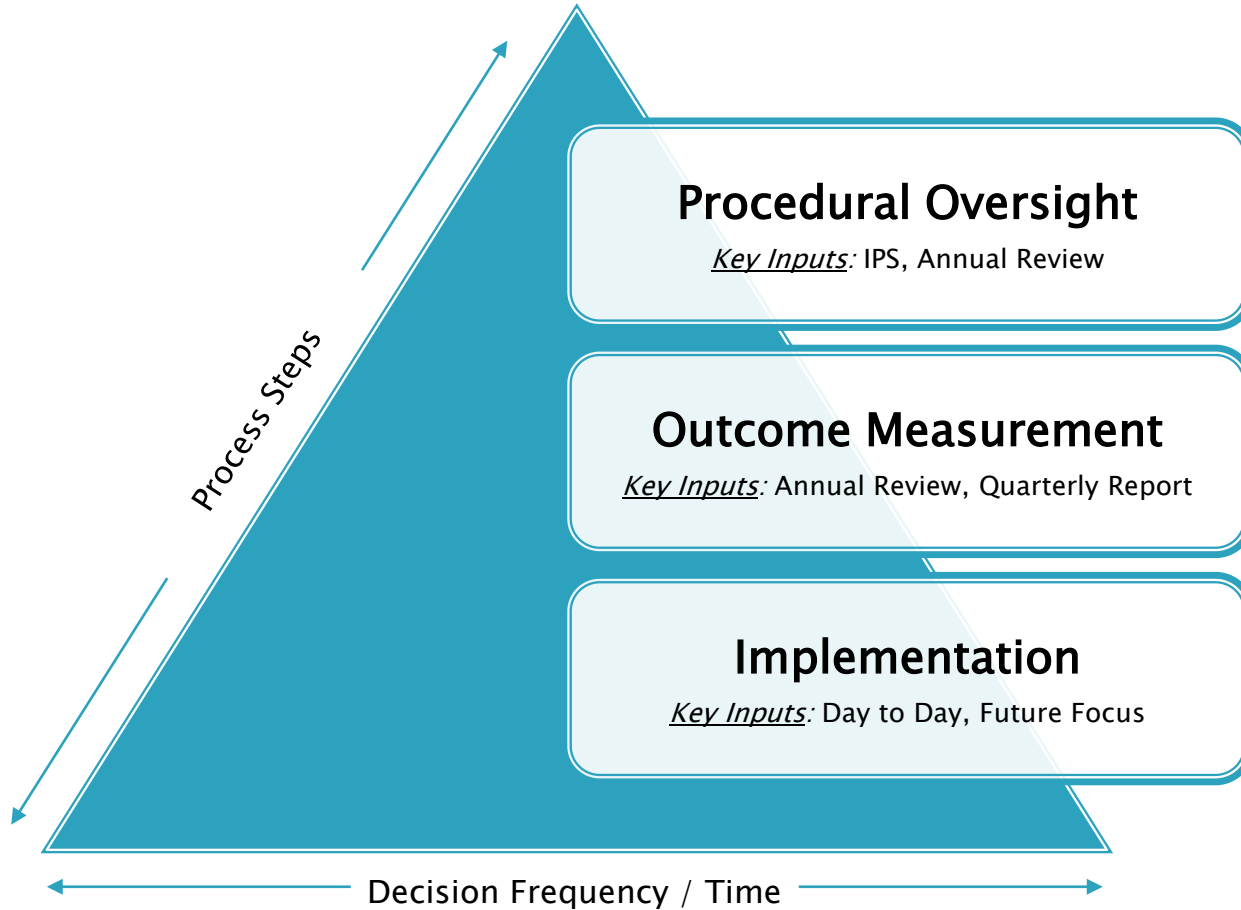
Per the TMRS IPS, comprehensive reviews are to be conducted and documented at least annually. The goal is to formally review managers' performance, current investment strategy or style relative to that which was communicated, and other issues related to the managers' organization, personnel, or investment 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.

-- Slide appears annually in conjunction with Real Estate/Real Return Annual Reviews

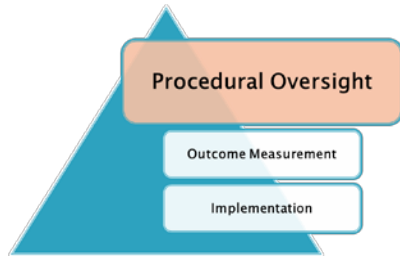
Introduction: Process Components

Hierarchy of the Decision Process



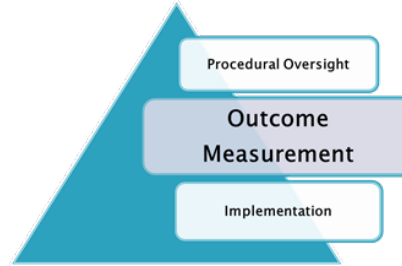
Introduction: Process Components

Procedural Oversight → Outcome Measurement → Implementation



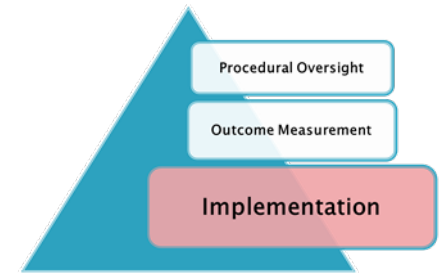
What *action & steps* have we taken? Are they adequate?

- Components of the Annual Review
- Compliance Review
- Due Diligence Review



Are *particular ends* achieved consistent with those desired? How might improvement be achieved?

- Capital Allocation
- Diversification
- Portfolio Performance
- Costs
- Manager Assessments

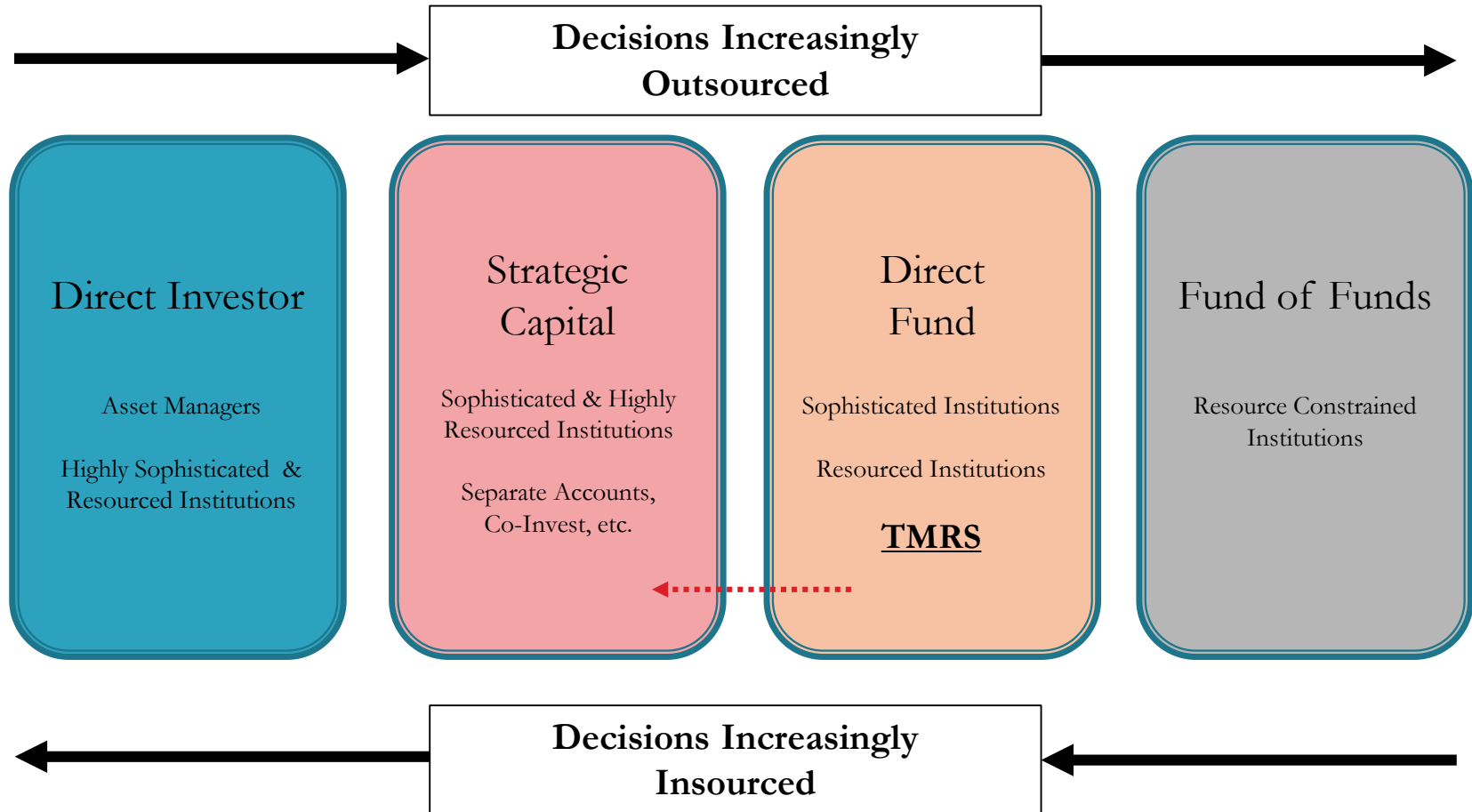
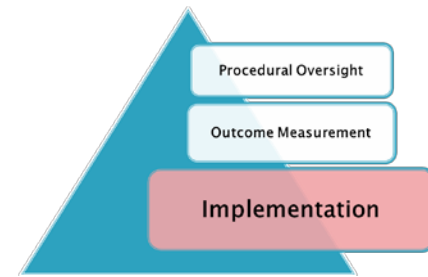


How might *actions and plans* set in motion today positively position TMRS for continued success?

- Future Focus
- Resource Assessment
- Initiatives

The Initiative

Strategic Capital



Section I

PROCESS PART I: PROCEDURAL OVERSIGHT

- Annual Review Components
- Compliance Review
- Due Diligence Review

Annual Review Components

Procedural Oversight

Outcome Measurement

Implementation

Texas Municipal Retirement System

COMPLETION & REVIEW OF COMPREHENSIVE ANNUAL REVIEW

Investment Director completes/signs the Certification and forwards it to the CIO for approval/signature.

With my signature below, I hereby certify that I have completed the Comprehensive Annual Review process pertinent to my area of responsibility. Included in the annual review process was as follows:

Summary Documents:

- ☒ A - Executive Summary
- ☒ B - Manager Scorecards
- ☒ C - Compliance Summary
- ☒ D - Fees Paid Summary
- ☒ E - Review of Consultant(s)
- ☒ F - Procedural Review by Asset Class Director
- ☒ G - Existing Manager Meetings Summary

Supporting Work Product:

- ☒ H - Manager Compliance Certificates
- ☒ I - Audited Financial Statement Opinions
- ☒ J - ADV Review Forms
- ☒ K - Public Mandate Operational Review Forms
- ☒ L - Quarterly Monitoring Packages
- ☒ M - Annual Review Board Materials



7/31/2020

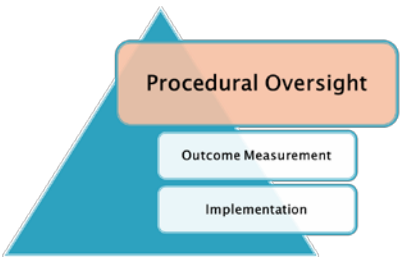
Investment Director Signature (Submission)

Date

The internal annual review is designed to ensure matters of compliance and major sources of managerial concern are looked at in depth, complete, and easily reviewable.

The Real Estate & Real Return annual review package averages roughly 800 pgs. annually.

Real Estate Annual Compliance Review



Procedural Oversight

Outcome Measurement

Implementation

Sector — TMRS is within sector limitations established. Core exposure is at 66.4%% (greater than the 50% minimum limitation), Value-Add exposure at 21.7% (less than 50% limitation) and Opportunistic exposure at 11.9% (less than 25% limitation).

Investment Size — No manager (20% limitation) nor vehicle (15% limitation) violates size limits.

Geography — TMRS is within Geographic Limitations established. Non-US exposure is currently at 7.7%, under the 20% limitation.

Leverage — Portfolio leverage as of Dec. 31, 2019 was 42.9% (41.3% YE 2018, 43.3% YE 2017, 44.1 YE 2016), under the overall portfolio limitation of 65%.

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

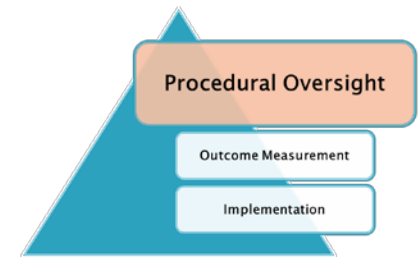
Public Security Limits — TMRS currently holds no separately managed accounts of public securities.

Commercial Mortgage Limitation — TMRS holds no commercial mortgages in separately managed accounts.

Co-Investment — TMRS currently has no real estate co-investments.

Valuation Policy — TMRS' managers are in compliance with valuation requirements.

Real Return Annual Compliance Review



Vehicle Concentration Guideline – TMRS is within guideline limits that no more than 35% of the total net assets of the real return portfolio may be invested in any one Registered Investment Vehicle.

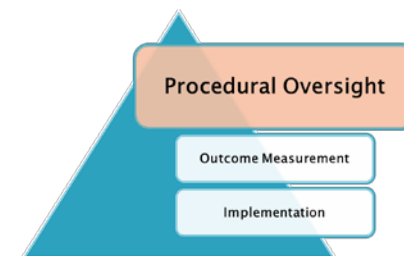
Closed or Open-end Vehicle Concentration Limit – TMRS is within guideline limits that no more than 15% of total net assets may be invested in a single Private investment Vehicle.

Commingled Open-End Concentration Limit – TMRS is within guideline limits that TMRS can not represent more than 20% of total net assets of a commingled investment vehicle.

Percentage of Manager AUM Limit – TMRS does not account for more than 25% of total AUM of any contracted manager's total AUM.

Due Diligence Review

RE/RR Summary of Activity



The Due Diligence Process

2019 Manager Approvals: \$850mm (7)

RE – \$250mm (3); RA – \$600mm (4)

LTM* Manager Approvals: \$1,359mm (13)

RE – \$1,038mm (10); RA – \$321mm (3)

LTM Vehicle Approvals: 19 vehicles

RE – 12 vehicles (1 Secondary); RA – 4 vehicles (1 co-invest)

LTM Successor Funds Approvals: \$600mm (6)

RE – \$450mm (5); RA – \$150mm (1)

LTM Successor Fund “No’s”: 3 Funds

LTM Manager Meetings: 350 Meetings

RE – 195 RA – 155

Due Diligence

RE/RR Manager Due Diligence File Procedure

Closing File Structure



Texas Municipal Retirement Systems
Due Diligence Process Control Document

Fund Investment: **Abacus Multi-Family Fund V**
(a fund sponsored by Abacus Capital Group)

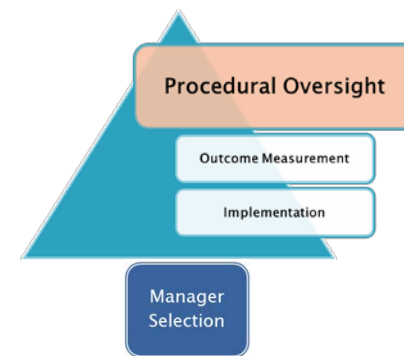
Approval Summary:

Search Process Approval	Board of Trustees	Date: December 6, 2018
Manager Approval	Investment Committee	Date: October 10, 2019
	Board of Trustees	Date: October 31, 2019
Asset Class:	Real Estate	
Vehicle Structure:	Limited Partnership	<input type="checkbox"/> Open-End <input checked="" type="checkbox"/> Closed End
Strategy Classification:	Real Estate (Value-Add, Multifamily)	
Approved Investment Amt.:	\$100,000,000	
Additional Information:	Present with Madison Realty Debt Fund V.	

General Documentation:

Index Item

<input checked="" type="checkbox"/> INFO Procedural Documents	1
<input checked="" type="checkbox"/> Recommendation Materials (TMRS & Consultant)	2
<input checked="" type="checkbox"/> Investment Questionnaire	3
<input checked="" type="checkbox"/> Contractual & Third Party Marketer Questionnaires	4
<input checked="" type="checkbox"/> Offering Memorandum (or comparable document)	5
<input type="checkbox"/> IMA / Limited Partnership Agreement (or comparable document)	6
<input type="checkbox"/> Subscription Agreement (or comparable document)	7
<input type="checkbox"/> Side Letter	8
<input type="checkbox"/> Execution Documentation (e.g. emails, letters of direction, etc.)	9
<input checked="" type="checkbox"/> Valuation Policy	10
<input checked="" type="checkbox"/> Form ADV/ Other Regulatory Oversight Documentation	11
<input checked="" type="checkbox"/> Background Check Documentation	12
<input checked="" type="checkbox"/> Personality Profiles	13
<input checked="" type="checkbox"/> ESG Policy/Review	14



In-Depth Diligence File Structure

- A - Dataroom & Manager Prepared Materials
- B - Meeting Notes
- C - Comparable Managers
- D - References
- E - Additional Materials

Due Diligence packages take a common form to ensure completeness and organization. However, each due diligence folder typically contains bespoke components based on importance for underwriting that specific strategy and manager.

Due Diligence

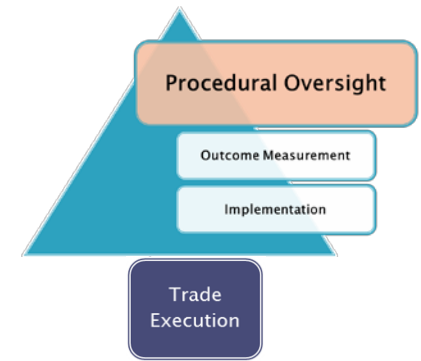
Initial Contracting & Operational Summary

Contract Negotiation

- Step 1: Business Review
- Step 2: Submission to Legal
- Step 3: External Counsel Review
- Step 4: Business/Lawyer Discussion
- Step 5: Iterative Negotiations
- Step 6: Closing Package Compilation
- Step 7: Closing Letters Submission
- Step 8: Document Execution

Operations

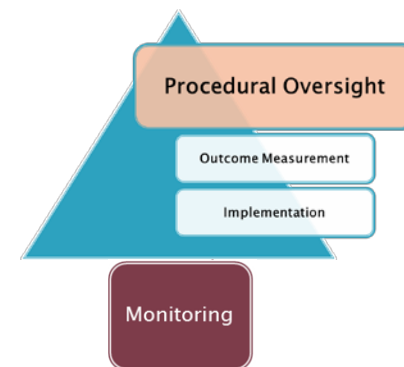
- Step 1: Account Opening
- Step 2: Field Cash Flow Notices
- Step 3: Ensure Contract Signed
- Step 4: Coordinate w/ Custodian
- Step 5: Confirm Wiring Instructions
- Step 6: Initiate Secondary Approvals
- Step 7: Money Wired




Front Office Investment Team interactions with Legal Team and Operational Team are highly structured in order to ensure steps aren't missed while still enabling timeshare flexibility to focus on more detailed analyses where necessary.

Due Diligence

RE/RR Quarterly Monitoring Procedure

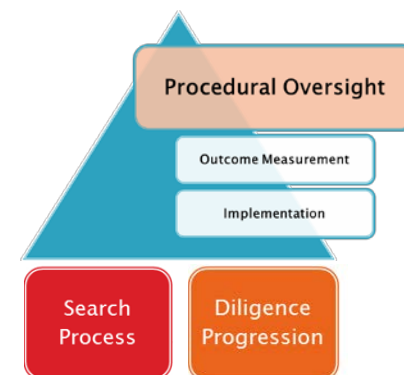


The quarterly monitoring procedure is designed principally to ensure the investment teams have a structured way to follow what is going on in investment vehicles, to hold team members accountable to the form and function of work product, and to provide a forum for sharing information in a managerial reporting format.

Texas Municipal Retirement System	
COMPLETION & REVIEW OF QUARTERLY MONITORING PROCESS	
<p>With my signature below, I hereby certify that I have completed the Quarterly Review process pertinent to my department's area of responsibility. Included in the quarterly review process was as follows:</p>	
<p><u>Quarterly Review Package – 4Q 2019</u></p>	
<p><input checked="" type="checkbox"/> TPS Reports <input checked="" type="checkbox"/> IPS Compliance Summary <input checked="" type="checkbox"/> Consultant Reports: <input checked="" type="checkbox"/> Stepstone <input checked="" type="checkbox"/> Albourne (Private RR & Liquid RR Reports)</p>	
<p><u>Other Supporting Files Stored</u></p>	
<p><input checked="" type="checkbox"/> State Street Final Performance Net All Report <input checked="" type="checkbox"/> State Street RE Performance Report <input checked="" type="checkbox"/> State Street Private Equity & Private Real Return Performance Report <input checked="" type="checkbox"/> RVK Quarterly Performance Report</p>	
<p><u>Quarterly Summary:</u></p>	
<ul style="list-style-type: none">• IC Approved Investments: Madison Realty Capital Debt Fund V (2019.10.10); Abacus Multi-Family Partners V (2019.10.10).• Board Approved Investments: All IC investments approved by Board on 2019.10.31.• Newly Closed Investments: None.• Terminated Mandates: None.• Rebalancing Activity: None.• Outstanding Contracts: Madison V, AMFP V, Berkeley Partner V, Virtus Enhanced Core• Real Estate Performance: 1.88% vs. BM 1.31% QTD; 7.26% vs. BM 5.59% 1 yr.; 7.26% vs. BM 5.59% YTD• Real Return Performance: 1.76% vs. 1.46% QTD; 15.54% vs. BM 14.27% 1 yr.; 15.54% vs. BM 14.27% YTD• # of Manager Meetings: 84, 68 distinct managers, 43 with non TMRS contracted managers• Key Initiatives: Allocation Activity for March; Analyst Training	
<p><small>*Performance as noted is representative of RVK reporting. Private fund vehicles are lagged a quarter. More comprehensive performance review materials are prepared and available in the annual review process.</small></p>	
	
Investment Director Signature	Date
	2020.06.29

Due Diligence

Search Process & Diligence Progression



Investment Recommendation Executive Summary	
Strategy Summary	
Paragraph 1: Description of Firm	
Paragraph 2: Description of Vehicle / Strategy	
Recommendation Information	
Investment Manager & Product	Manager Legal Name Fund Legal Name
Recommendation	Up to \$xx amount; up to \$xx co-invest
Investment Committee Presentation	xx/xx, 2019
Prospective Board Approval	xx/xx, 2019
Prior TMRS Investments with Manager	None.
Strategy & Vehicle Information	
Targeted Fundraise / Closing	\$Target Raise / \$ Hardcap / Timing of Closes
Key Decision Makers	Partner 1, Partner 2, etc.
Reasons to Invest	<ul style="list-style-type: none"> Reason 1 Reason 2 Reason 3
Issues to Watch	<ul style="list-style-type: none"> Issue 1 Issue 2 Issue 3
Terms	
Return Profile	Net IRR & MOIC Targets
Management Fee	Fee & Structure
Waterfall / Performance Fee	Preferred, Carry, Waterfall Structure
Liquidity	Invest / Harvest / Term / Redemption Rights
Leverage	Fund Level, Asset Level, Subscription Facility, etc.
LPAC	TMRS on LPAC: Yes/No
Other Notes	

Search process, diligence progression and recommendation information culminates in a standardized Investment Committee memo being prepared. This document serves as the centralized basis for recommendation rationale, documentation thereof, and reference for many front, middle and back office functions.

Section II

PROCESS PART II: OUTCOME MEASUREMENT

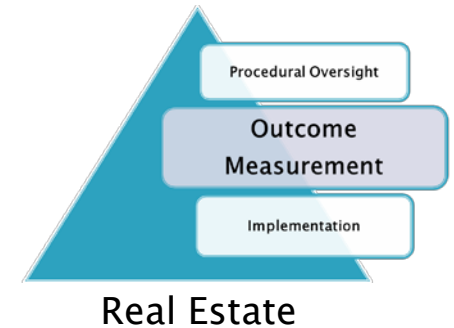
- Capital Allocation
- Diversification
- Portfolio Performance
- Costs
- Manager Assessments

Section II – Process Part II: Outcome Measurement

REAL ESTATE

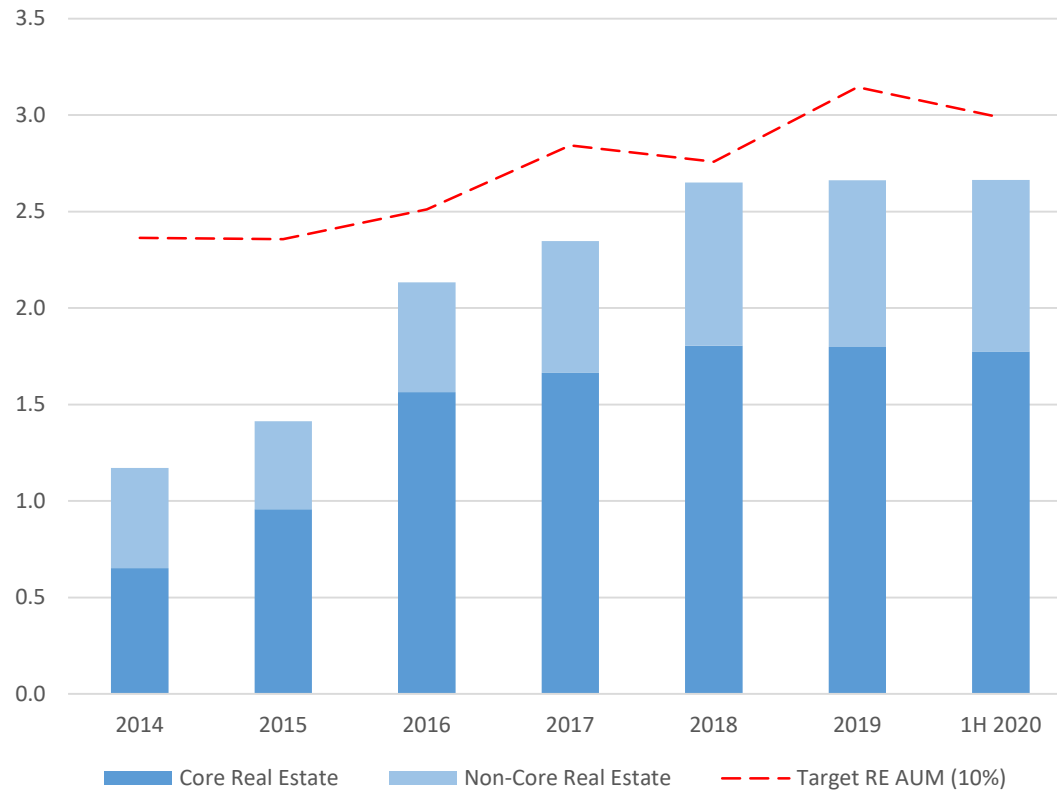
Real Estate: Capital Allocation Objectives

Have we allocated at the scale we wanted to?



Real Estate AUM vs. Portfolio Target

\$ Billions Left Axis

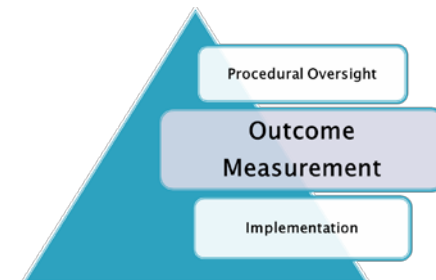


The TMRS real estate portfolio is nearing a mature state.

Future decisions will center around fee efficiency and portfolio level risk determinations.

Real Estate: Capital Allocation Objectives

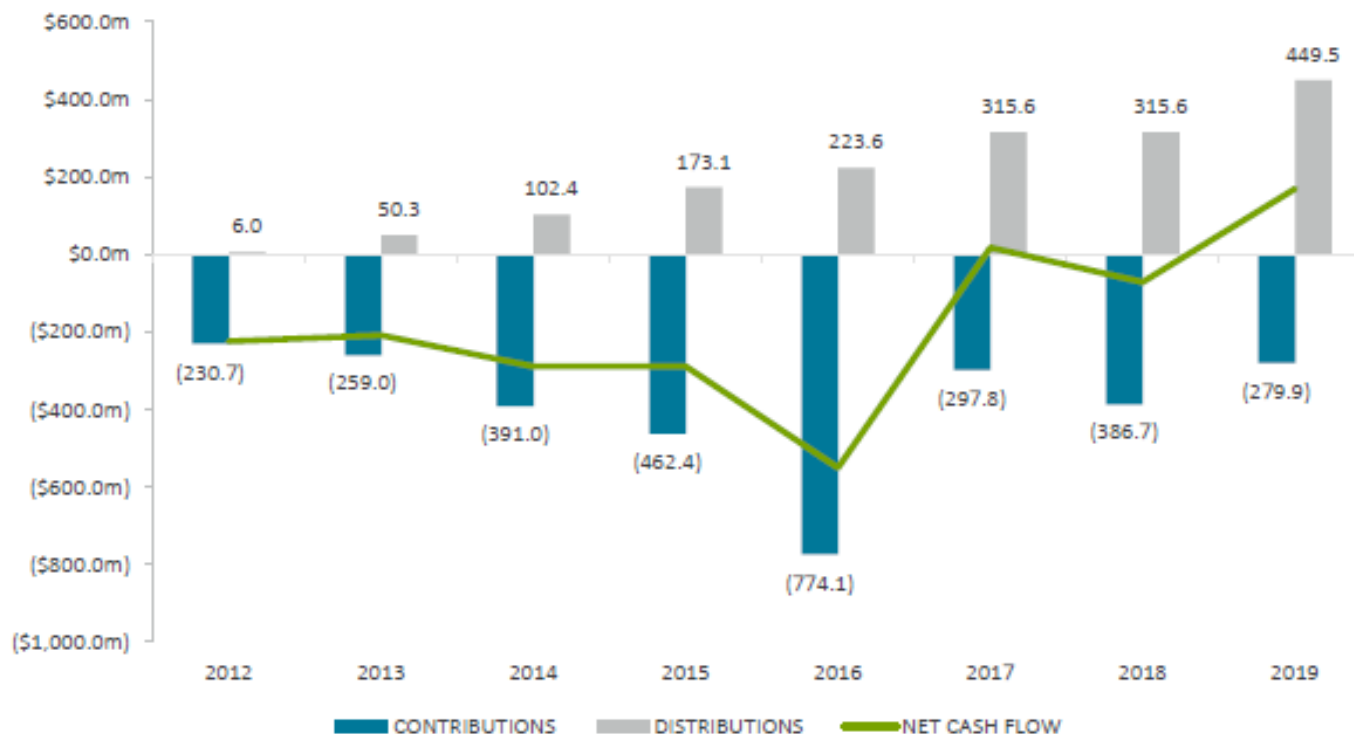
Cash Flow



Real Estate

YEARLY CASH FLOW ACTIVITY

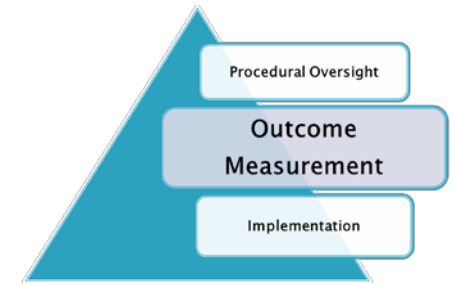
During the twelve months ended December 31, 2019, TMRS's Portfolio contributed \$279.9 million and received \$449.5 million in distributions, for a net cash inflow of \$169.6 million.



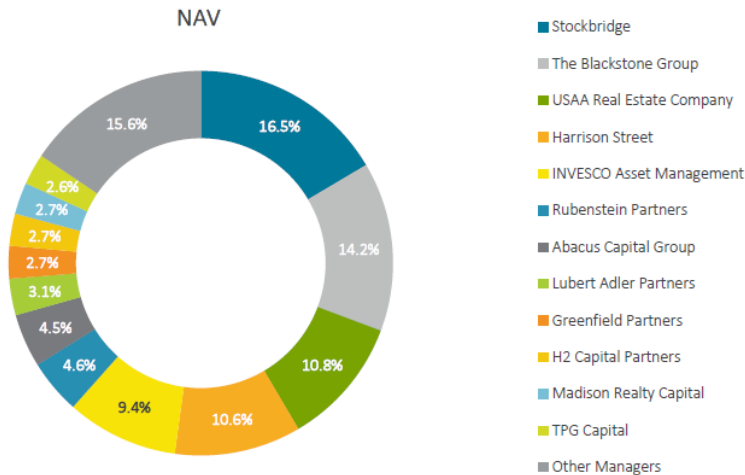
TMRS' portfolio has matured in lock-step with expectations, increasing distributions in every year since the program's inception.

Real Estate: Diversification Objectives

Are we as diversified as we want to be? Where is there active risk?

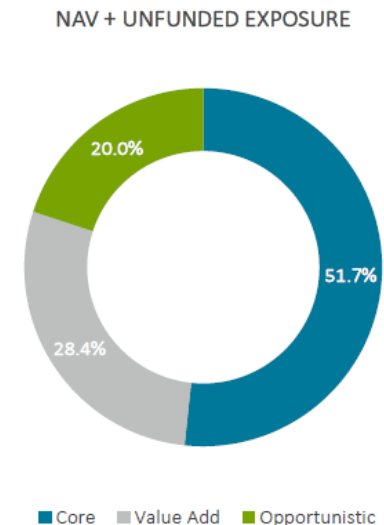
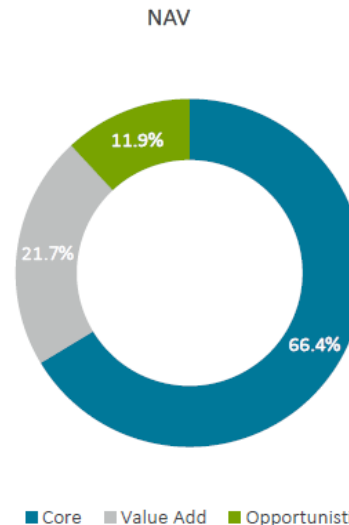


Real Estate



Manager diversification is within policy limits.

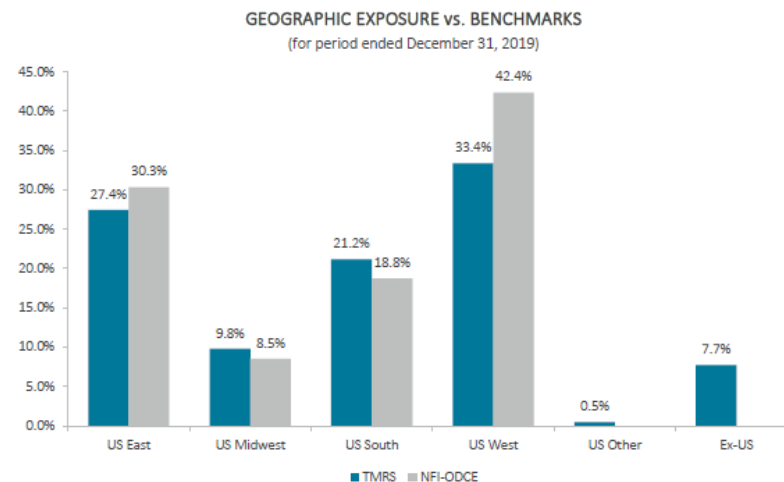
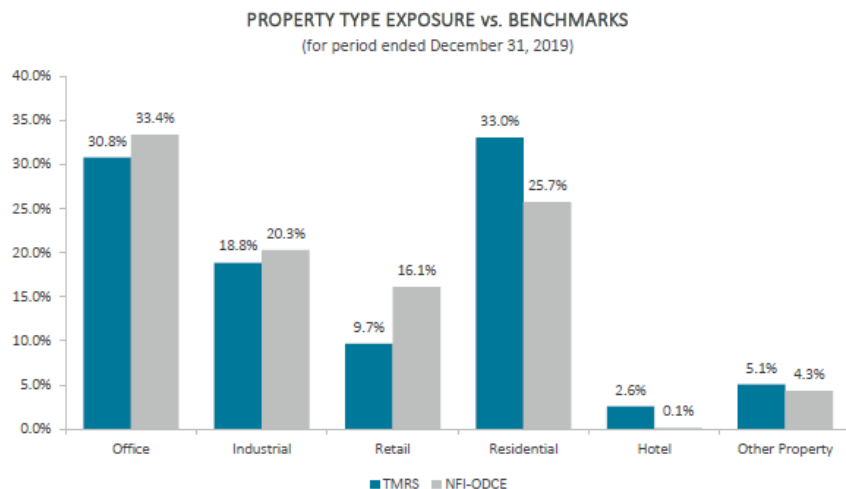
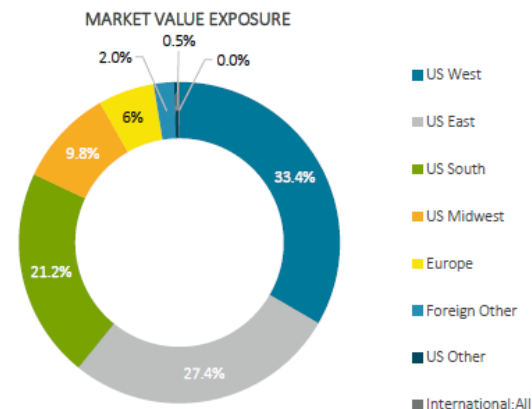
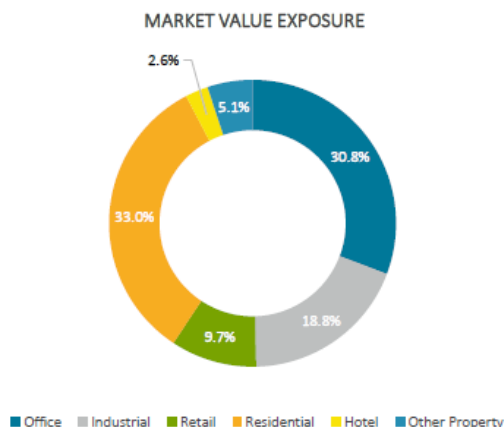
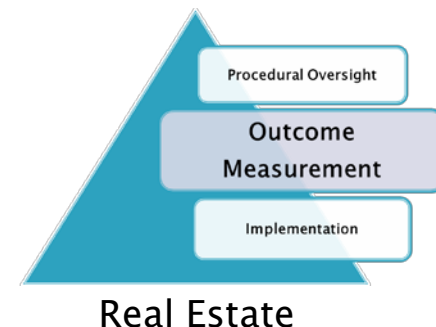
Sector diversification is within policy limits.



Real Estate: Diversification Objectives

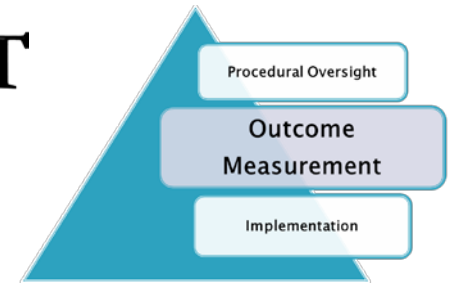
Are we as diversified as we want to be? Where is there active risk?

Property type & Geographic Diversification are within policy limits:



PERFORMANCE MEASUREMENT

THREE PILLARS



Absolute Return

N/M – Market Beta Driven

Relative to Benchmark

TMRS: Was short term positioning good? Was it intentional?

Manager: If valid benchmark, good positioning? Intentional?

Relative to Peers

N/M – Too many variables, more valid questions pertain to benchmark selection

Short Term

Longer Term

TMRS: Is asset class meeting asset allocation objective? Is Benchmark (BM) choice appropriate?

Manager: Is manager/strategy meeting a priori expectations?

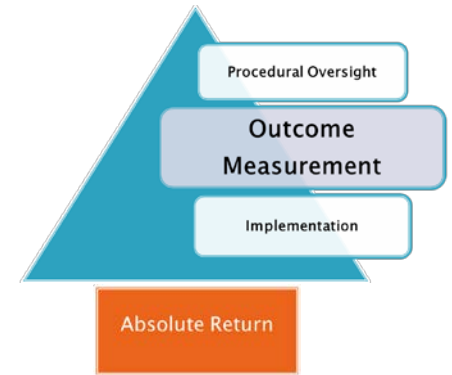
TMRS: Given BM choice, has program been successfully implemented?

Manager: If valid benchmark, has strategy been implemented well?

TMRS: Has our program design been different from consensus? Have our choices been better or worse?

Manager: Do you continue to deserve to be invested with?

Real Estate: Performance Measurement



	1 Yr.	Met Objective
Core Return	6.6%	✓
Non-Core Return	7.7%	✓
Total RE Return	7.0%	✓

	3 Yr.	Met Objective
Core Return	7.6%	✓
Non-Core Return	11.7%	✓
Total RE Return	8.9%	✓

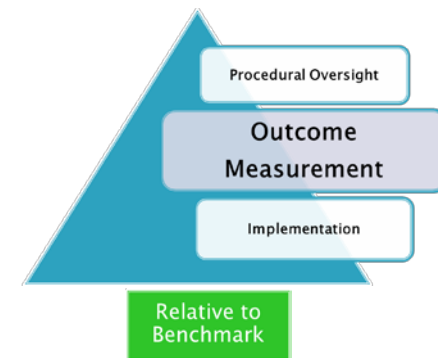
	5 Yr.	Met Objective
Core Return	9.1%	✓
Non-Core Return	12.3%	n/a
Total RE Return	10.1%	✓

After years of favorable returns, the real estate markets have returned to moderate levels.

The TMRS portfolio has continued to outperform the assumed rates of return in the asset allocation model.

Returns have also exceeded CPI + 500 return goal utilized in the IPS.

Real Estate: Performance Measurement

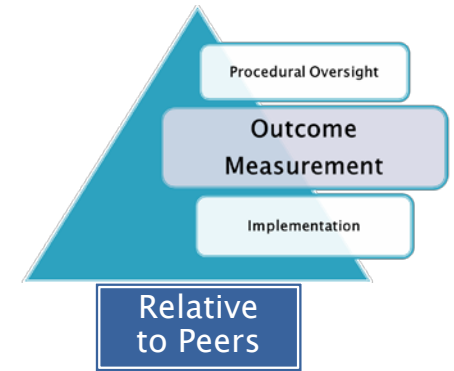


	1 Yr.	Benchmark	Met Objective	Outperformance
Core Return	6.6%	5.3% - 90 bps fees	✓	216 bps
Non-Core Return	7.7%	5.3% + Spread	✓	n/a
Total RE Return	7.0%	5.3% (ODCE Gross)	✓	170 bps

	3 Yr.	Benchmark	Met Objective	Outperformance
Core Return	7.6%	7.1% - 90 bps fees	✓	141 bps p/a
Non-Core Return	11.7%	7.1% + Spread	✓	n/a
Total RE Return	8.9%	7.1%	✓	180 bps p/a

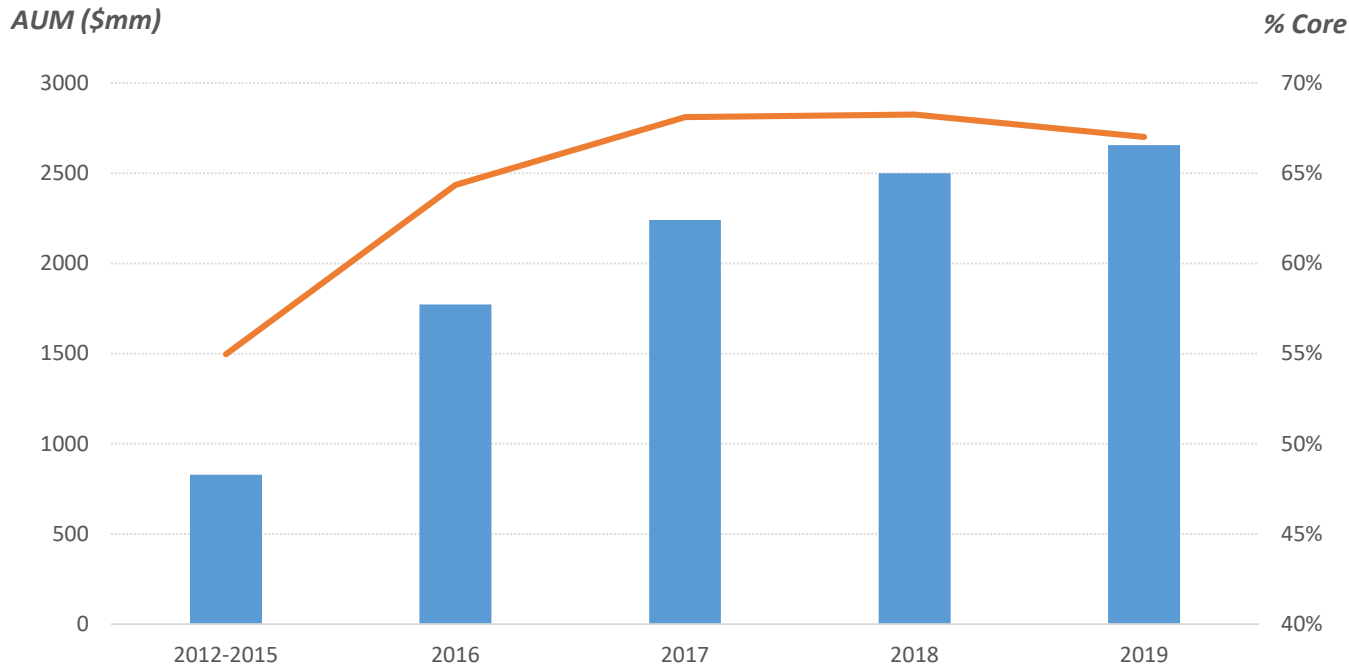
	5 Yr.	Benchmark	Met Objective	Outperformance
Core Return	9.1%	9.0% - 90 bps	✓	103 bps p/a
Non-Core Return	12.3%	n/a	n/a	n/a
Total RE Return	10.1%	9.0%	✓	110 bps p/a

Real Estate: Performance Measurement



Real Estate
by AUM & Core Allocation

AUM (Avg) % Core (Avg)

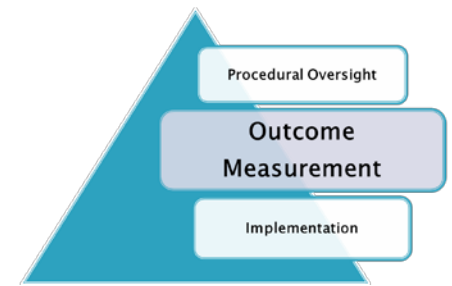


TMRS' Real Estate Portfolio has performed well compared to peers despite our increasing push into lower risk strategies.

43%	1%	13%	9%	46%	1 Yr. RVK Universe Rank
n/a	18%	1%	1%	3%	5 Yr. RVK Universe Rank

Real Estate: Performance Measurement

Three Pillars



Absolute Return

N/M

Relative to Benchmark

TMRS: Was short term positioning good? Was it intentional? YES, YES

Manager: If valid benchmark, good positioning? Intentional? YES, YES

Relative to Peers

N/M

Short Term

Longer Term

TMRS: Is asset class meeting asset allocation objective? Is BM choice appropriate? YES

Manager: Is manager/strategy meeting a priori expectations?
On Average, YES

TMRS: Given BM choice, has program been successful? YES

Manager: If valid benchmark, has strategy been implemented well?
On Average, YES

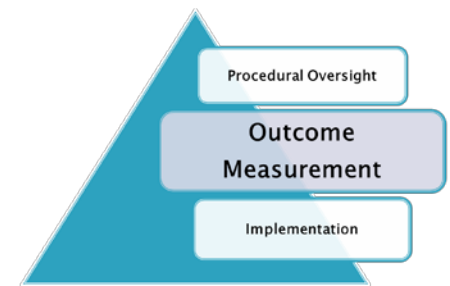
TMRS: Has our program design been different from consensus? Have our choices been better or worse?

Manager: Do you deserve to be invested with still?

Questions must always be asked

Additional Performance Data

Dollarized Relative Performance



Relative Outperformance (\$ Value)				
	2017 (YE)	2018 (YE)	2019 (YE)	3 Yr.
Total Relative Performance (\$)	61.7	26.5	45.9	\$134.2mm
Core Relative Performance (\$ millions)	27.4	5.1	39.6	\$71.2mm
% of Dollar Relative Value	n/m			53.8%
Portfolio Weight				68.4%
Non-Core Relative Performance (\$ millions)	34.3	21.4	6.3	\$62mm
% of Dollar Relative Value	n/m			46.2%
Portfolio Weights				31.6%

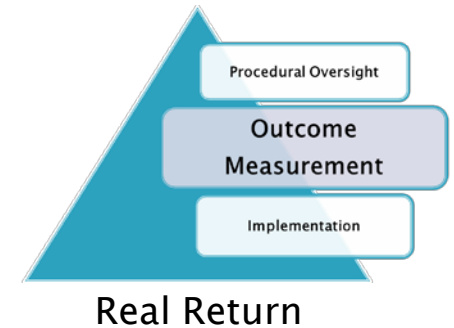
TMRS Real Estate Portfolio has added about \$134.2mm in outperformance over trailing three years, or the equivalent of 6,818 person years of TMRS benefit payments.

Section II – Process Part II: Outcome Measurement

REAL RETURN

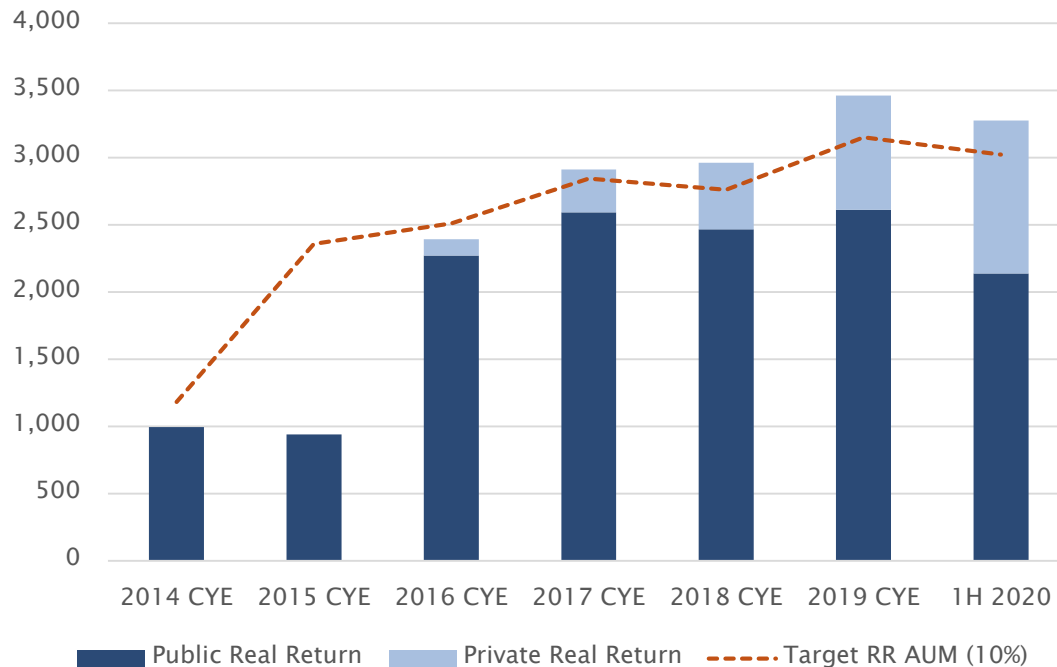
Real Return: Capital Allocation Objectives

Have we allocated at the scale we wanted to?



Real Return AUM vs. Portfolio Target

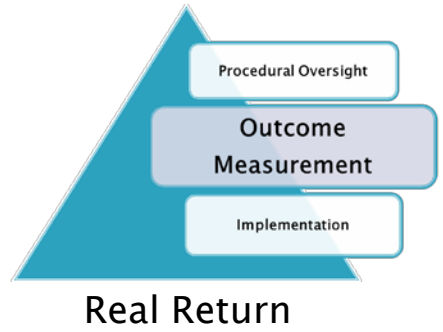
\$ Millions Left Axis



Continued real return commitments have moved TMRS toward its targeted asset allocation goals. There is anticipated to be a continued focus on private real return deployment going forward.

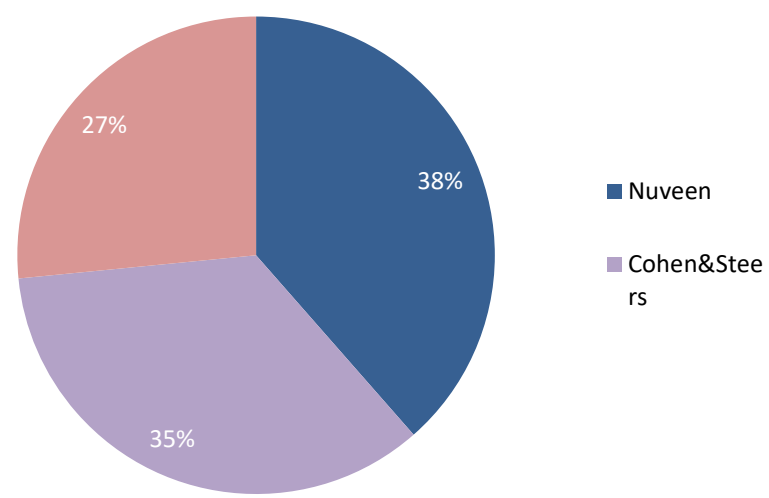
TMRS Real Return Portfolio

What we are Invested In



Portfolio Exposure by Manager

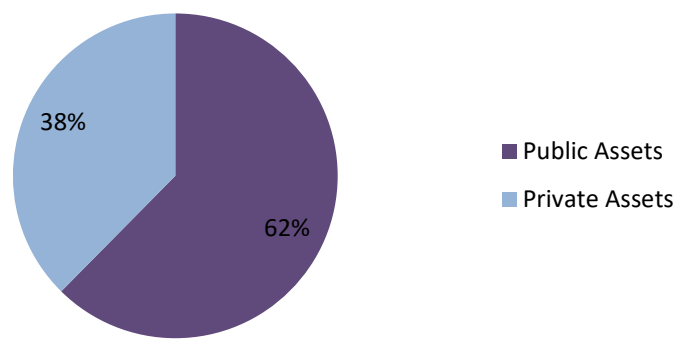
Public Markets Detail as of 6/30/2020



TMRS is well diversified across public markets and private allocations are growing as commitments are drawn.

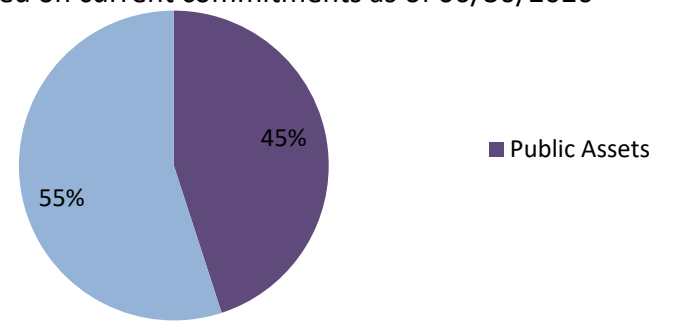
Current Private vs. Public Assets

as of 6/30/2020 at target allocation



Projected Private vs. Public Assets

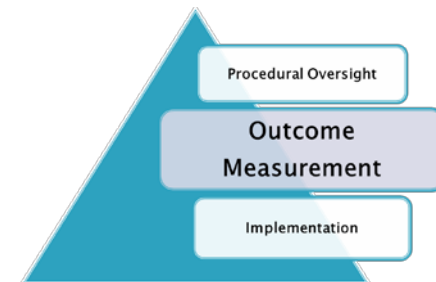
based on current commitments as of 06/30/2020



All charts presented on an adjusted committed basis.

TMRS Real Return Portfolio

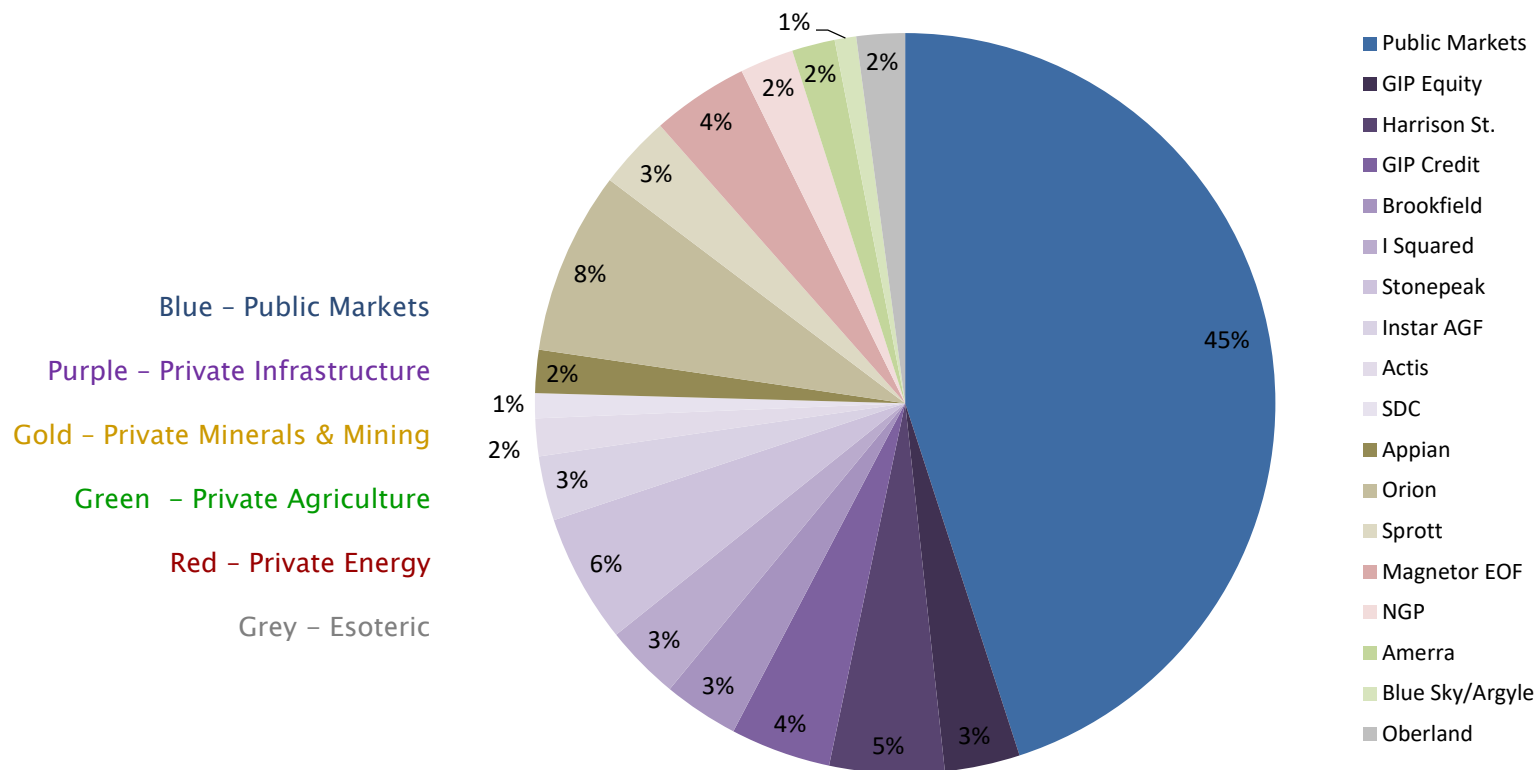
What we are Invested In



Real Return

Portfolio Exposure by Manager

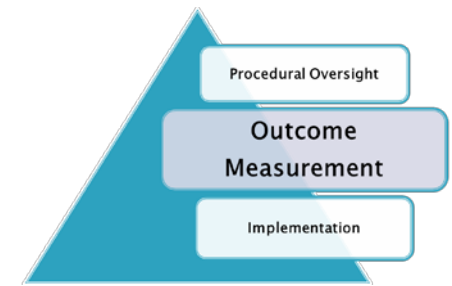
by Adj. Commitments, 06/30/2020



Private investment strategy commitments are drawing down real return public markets exposure.

TMRS Real Return Portfolio

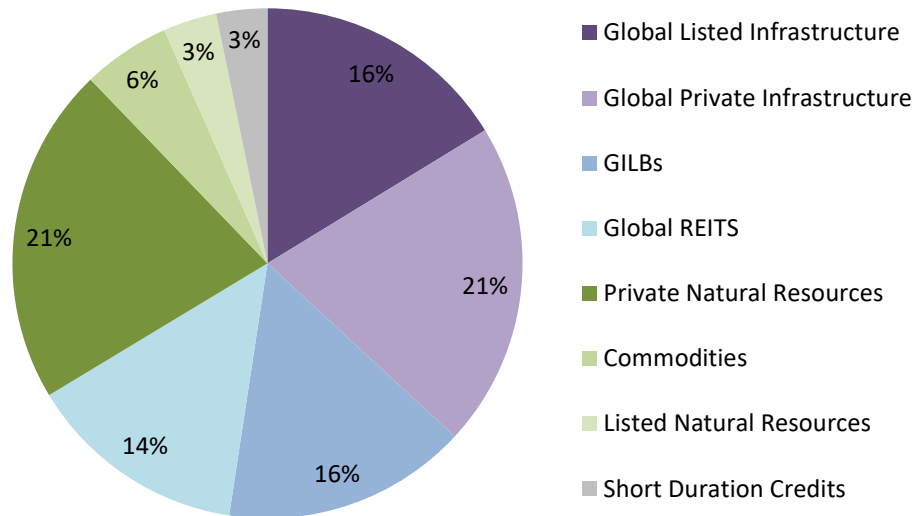
What we are Invested In



Real Return

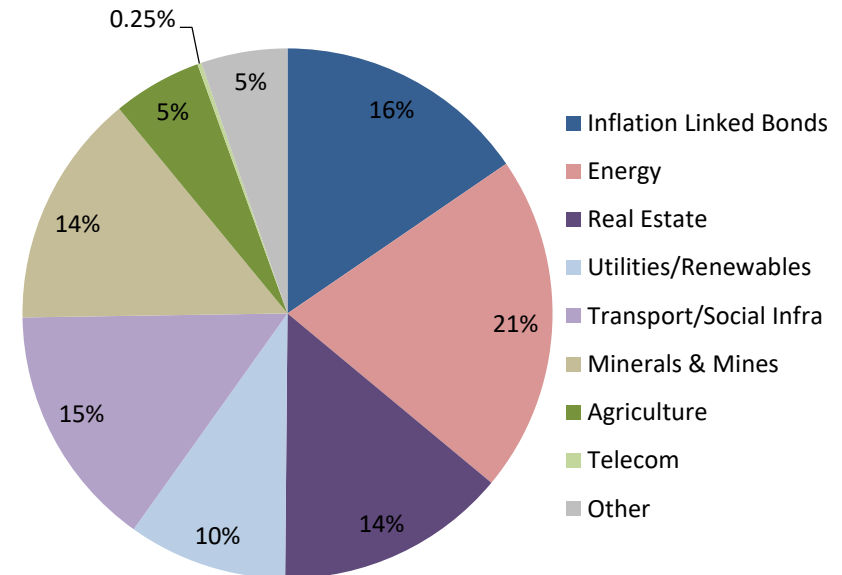
Portfolio Exposure by Asset Type

as of 3/31/2020



Portfolio Exposure by Sector

as of 03/31/2020



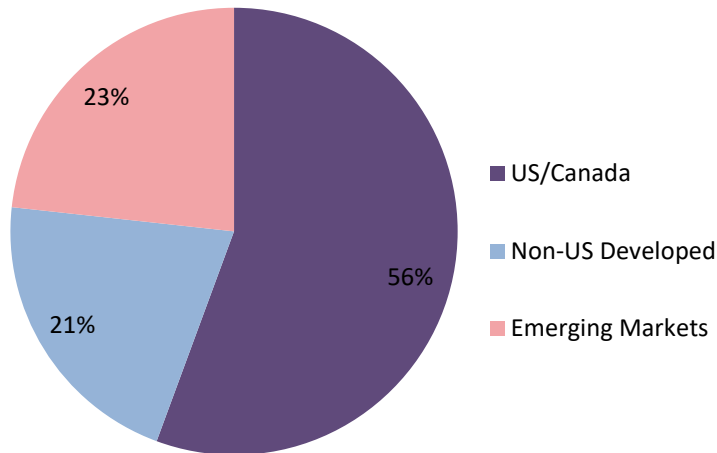
TMRS maintains a well diversified portfolio by asset type and sector.

TMRS Real Return Portfolio

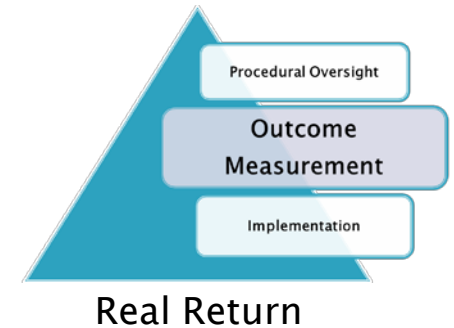
What we are Invested In

Portfolio Exposure by Geography

as of 03/31/2020



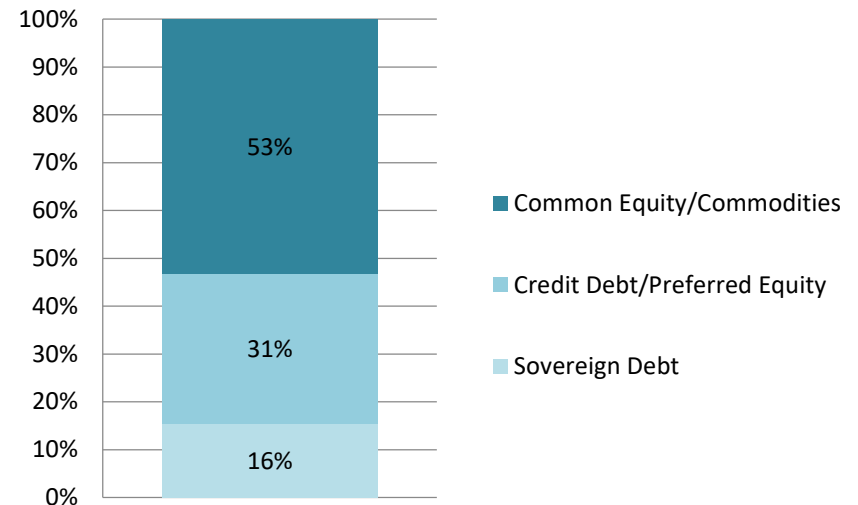
TMRS' real return capital structure is increasingly mirroring the broader portfolio.



Real Return is a global opportunity set.

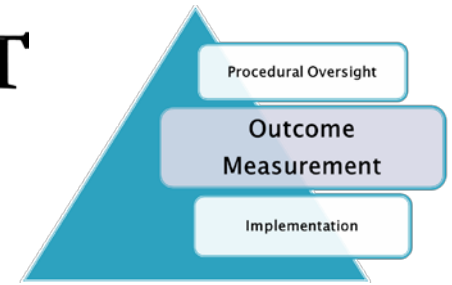
Real Return Capital Structure

as of 03/31/2020



PERFORMANCE MEASUREMENT

THREE PILLARS



Absolute Return

N/M – Market Beta Driven

Relative to Benchmark

TMRS: Was short term positioning good? Was it intentional?

Manager: If valid benchmark, good positioning? Intentional?

Relative to Peers

N/M – Too many variables, more valid questions pertain to benchmark selection

Short Term

Longer Term

TMRS: Is asset class meeting asset allocation objective? Is Benchmark (BM) choice appropriate?

Manager: Is manager/strategy meeting a priori expectations?

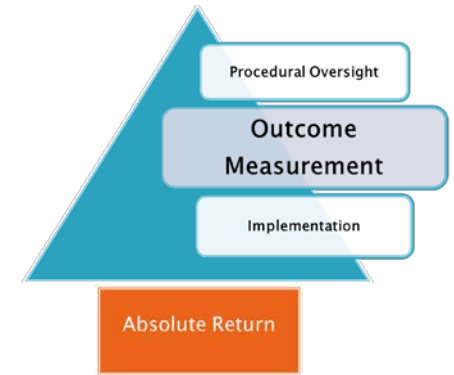
TMRS: Given BM choice, has program been successfully implemented?

Manager: If valid benchmark, has strategy been implemented well?

TMRS: Has our program design been different from consensus? Have our choices been better or worse?

Manager: Do you continue to deserve to be invested with?

Real Return: Performance Measurement



	1 Yr.	Met Objective
Public Mkts. Return	-7.46%	n/a
Private Mkts. Return	-2.59%	n/a
Total RR Return	-7.37%	n/a

	3 Yr.	Met Objective
Public Mkts. Return	0.16%	n/a
Private Mkts. Return	4.9%	n/a
Total RR Return	0.73%	n/a

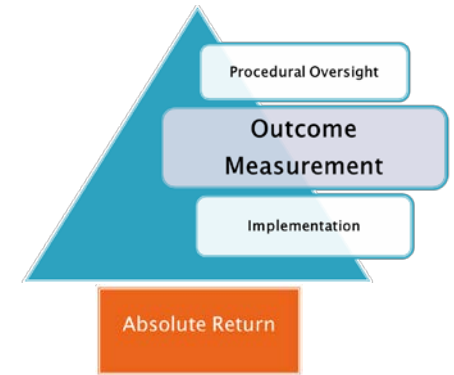
	5 Yr.	Met Objective
Public Mkts. Return	1.19%	X
Private Mkts. Return	n/a	n/a
Total RR Return	1.52%	X

An absolute return objective of CPI + 400bps is established as the long term objective of the real return portfolio. Long term being defined as 5 years or greater.

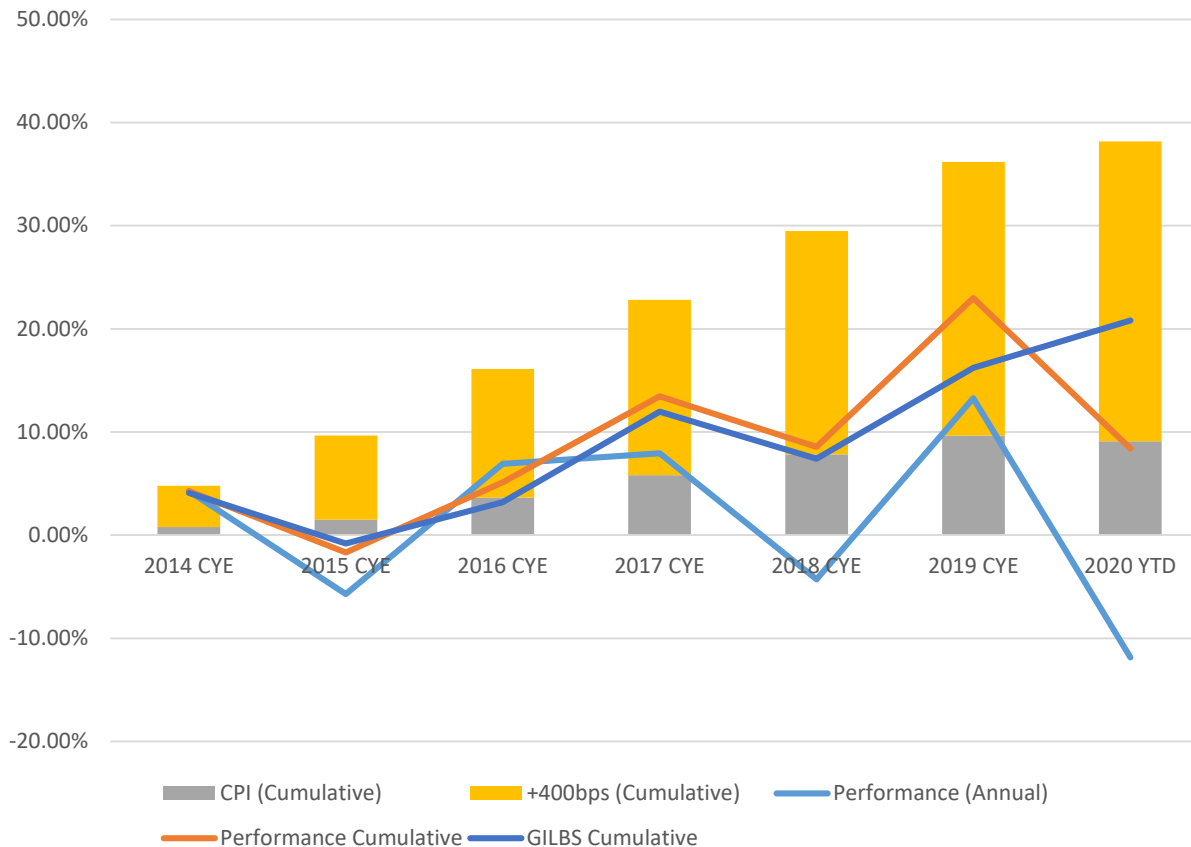
Over the next 12 months it is anticipated that the private portion of the portfolio will surpass 50% of net asset value. The private portfolio will also reach 5 years since inception at TMRS.

Private Markets Returns should increasingly contribute positively to returns through time.

Real Return: Performance Measurement



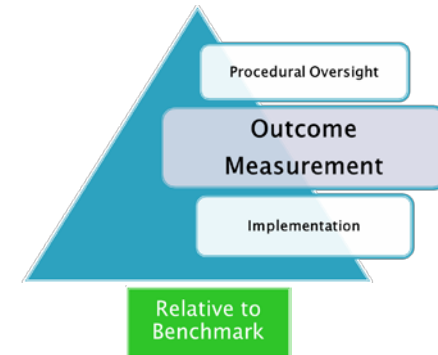
Absolute Performance Comparison vs. Asset Class Goal



Performance in real return is more volatile on an annual basis than is the asset class goal.

Portfolio objectives are to increase performance from the default portfolio and move toward and eventually beyond our asset class goal.

Real Return: Performance Measurement



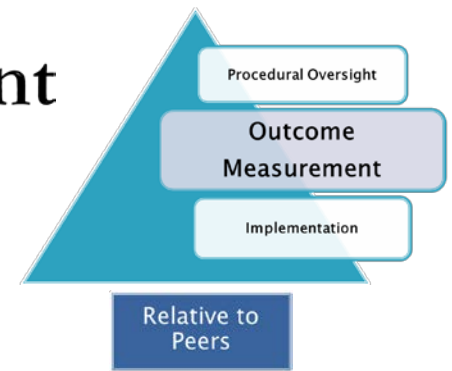
	1 Yr.	Benchmark	Met Benchmark	Outperformance
Public Mkts. Return	-7.46%	-7.99%	✓	+53bps
Private Mkts. Return	-2.59%	n/m or > Public	n/m or ✓	+543bps
Total RR Return	-7.37%	-7.40%	✓	+3bps

	3 Yr.	Benchmark	Met Benchmark	Outperformance
Public Mkts. Return	0.16%	0.03%	✓	+13bps
Private Mkts. Return	4.9%	n/m or > Public	n/m or ✓	+487bps
Total RR Return	0.73%	0.78%	X	(5bps)

	5 Yr.	Benchmark	Met Benchmark	Outperformance
Public Mkts. Return	1.19%	1.47%	X	(28bps)
Private Mkts. Return	n/a	n/a	n/a	n/a
Total RR Return	1.52%	2.02%	X	(49bps)

Real Return: Performance Measurement

Plan Sponsor Comparison to Peers



Relative to Peers Analysis at the Plan Sponsor level would typically compare TMRS performance to other public pension plans. There is insufficient data to perform this analysis currently for multiple reasons:

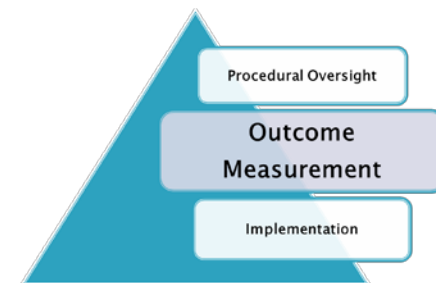
- 1) There is no reported peer universe for Real Return
- 2) The asset class is still institutionally nascent
- 3) Real Return program design is highly heterogeneous

Relative to peers analysis at the manager level are difficult at this stage of portfolio development because private funds are too early in fund life cycles and public mandates are highly heterogeneous.

Relative to peers analysis will become more relevant with time.

Real Return: Performance Measurement

Three Pillars



Absolute Return

N/M

Relative to Benchmark

TMRS: Was short term positioning good? Was it intentional? **Mixed**

Manager: If valid benchmark, good positioning? Intentional? **Mixed**

Relative to Peers

N/M

Short Term

Longer Term

TMRS: Is asset class meeting asset allocation objective? Is BM choice appropriate? **Mixed**

Manager: Is manager/strategy meeting a priori expectations? **Mixed**

TMRS: Given BM choice, has program been successful? **Mixed**

Manager: If valid benchmark, has strategy been implemented well? **Mixed**

TMRS: Has our program design been different from consensus? Have our choices been better or worse?

Manager: Do you deserve to be invested with still?

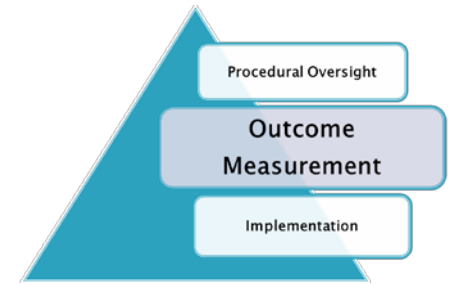
Questions must always be asked

Section II – Process Part II: Outcome Measurement

ADDITIONAL OUTCOME DATA

Costs Analysis

What are we Paying for Investment Management Services?



Real Estate:

Total 2019 Management Fees Paid: \$29.9mm (\$32.1mm in 2018)

2019 Fee % of Wtd. Avg. AUM: 0.93% (1.23%)

Real Return:

Total 2019 Management Fees Paid: \$30.8mm (\$25.5mm in 2018)

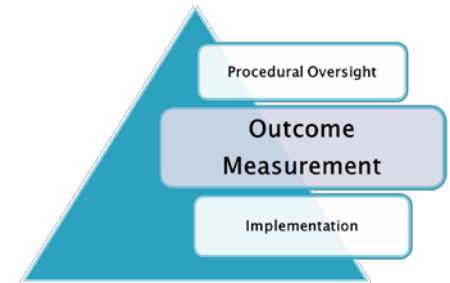
2019 Fee % of Wtd. Avg. AUM: 1.14% (0.86%)

Stable and predictable paths of investment cost have been achieved in the real estate portfolio.

As the private real return portfolio grows, fee burdens and net returns are both expected to rise.

Costs Analysis

Are we effective negotiators and executors?



Schedule of Investment Cost Savings

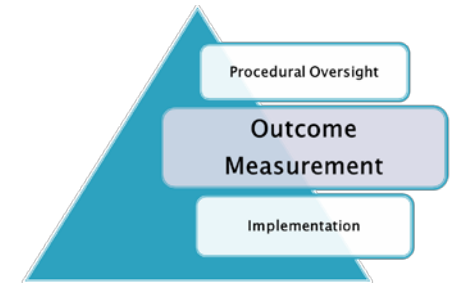
(\$ thousands)

Investment Vehicle	Mgt Fee Savings	Incentive Fee Savings	Total
Vehicle A (RE)	281	0	281
Vehicle B (RE)	375	0	375
Vehicle C (RE)	1,688	0	1,688
Vehicle D (RE)	1,375	1,000	2,375
Vehicle E (RE)	13,954	550	14,504
Vehicle F (RE)	516	375	891
Vehicle G (RE)	1,444	0	1,444
Vehicle H (RE)	2,475	0	2,475
Vehicle I (RE)	8,373	15,908	24,280
Total Est. RE Savings	30,480	17,833	48,313
Vehicle J (RR)	2,750	0	2,750
Vehicle K (RR)	4,813	7,000	11,813
Vehicle L (RR)	1,444	0	1,444
Vehicle M (RR)	4,456	3,000	7,456
Vehicle N (RR)	1,706	0	1,706
Total Est. RR Savings	15,169	10,000	25,169
Total Estimated Savings	45,649	27,833	73,481

TMRS in the last twelve months is estimated to have negotiated fee discounts of approximately \$73.5 million dollars, the equivalent of 3,705 TMRS person years of retirement benefits.

Costs Analysis

How have we had success as negotiators?



Negotiated Cost Discounts by Type (*\$ thousands*)

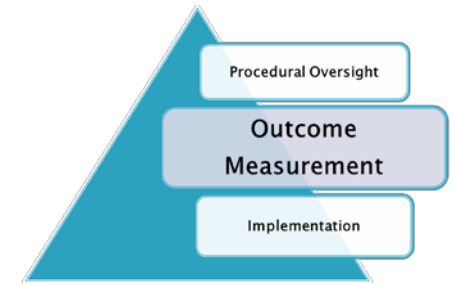
Discount Type	Total Capital Deployed	Fee Discounts	Est. Profits	Discount Rate	% of Total Discounts	% of Capital Deployed
TMRS Directed Structures	87,500	19,269	43,333	44.5%	26%	6%
Other Strategic Capital	400,000	18,282	148,333	12.3%	25%	25%
Execution/Timing	887,500	31,530	226,667	13.9%	49%	56%
Scale		3,547	148,333	2.4%		
Consultant		853	40,000	2.1%		
Non-Discounted Structures	208,000	0	80,933	0.0%	0%	13%
Total	1,583,000	73,481	687,600	10.7%		

**Inclusive of July 1, 2019 - June 30, 2020 Real Estate & Real Return Commitments; estimated over shorter of life of vehicle or 10 yrs.*

TMRS Directed Capital, those structures designed to be most flexible but requiring the most time resources, have disproportionate cost savings benefits to TMRS.

Manager Assessments

Scorecards & Analysis



Annual Manager Report Card for:

Assessment Area	Grade	Update & Comments
Organization		
People		
Philosophy/Strategy/Process		
Portfolio(s)		
Performance		
Compliance		
Guideline Changes		
Risk Management		
Operations		
Client Service		
Other		

Excellent	In Good Standing	Fair (working with manager)	Unsatisfactory (remedial action being taken)	Comprehensive Review
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Summary Data

47 Managers Reviewed

41 'In Good Standing'
24 RE; 17 RR; ~96% of RE/RA AUM

2 'Fair'
2 RE, 0 RR; ~1% of RE/RA AUM

3 'Unsatisfactory'
1 RE; 2 RR; ~3% of RE/RA AUM

1 'Comprehensive Review'
1RR; 0% of RE/RA AUM
Manager Redeemed February 2020

Section III

PROCESS PART III: IMPLEMENTATION

- Future Focus
- Resources Assessment
- Initiatives

Resource Assessment

Growing Roles of Private Assets & TMRS Directed Investments

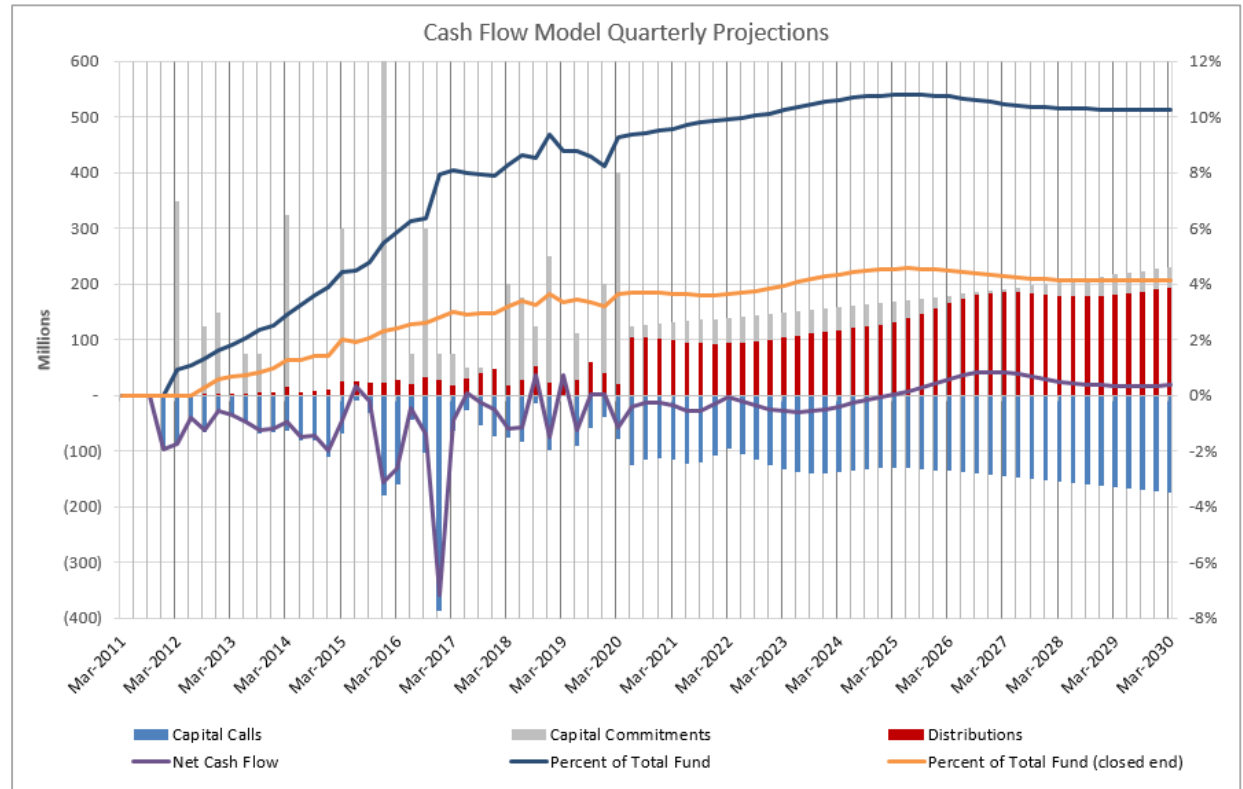
Procedural Oversight

Outcome Measurement

Implementation

Real Estate Pacing Model

Continued deployment into private assets will need to be made to achieve longer term allocation goals.



Resource Assessment

Growing Roles of Private Assets & TMRS Directed Investments

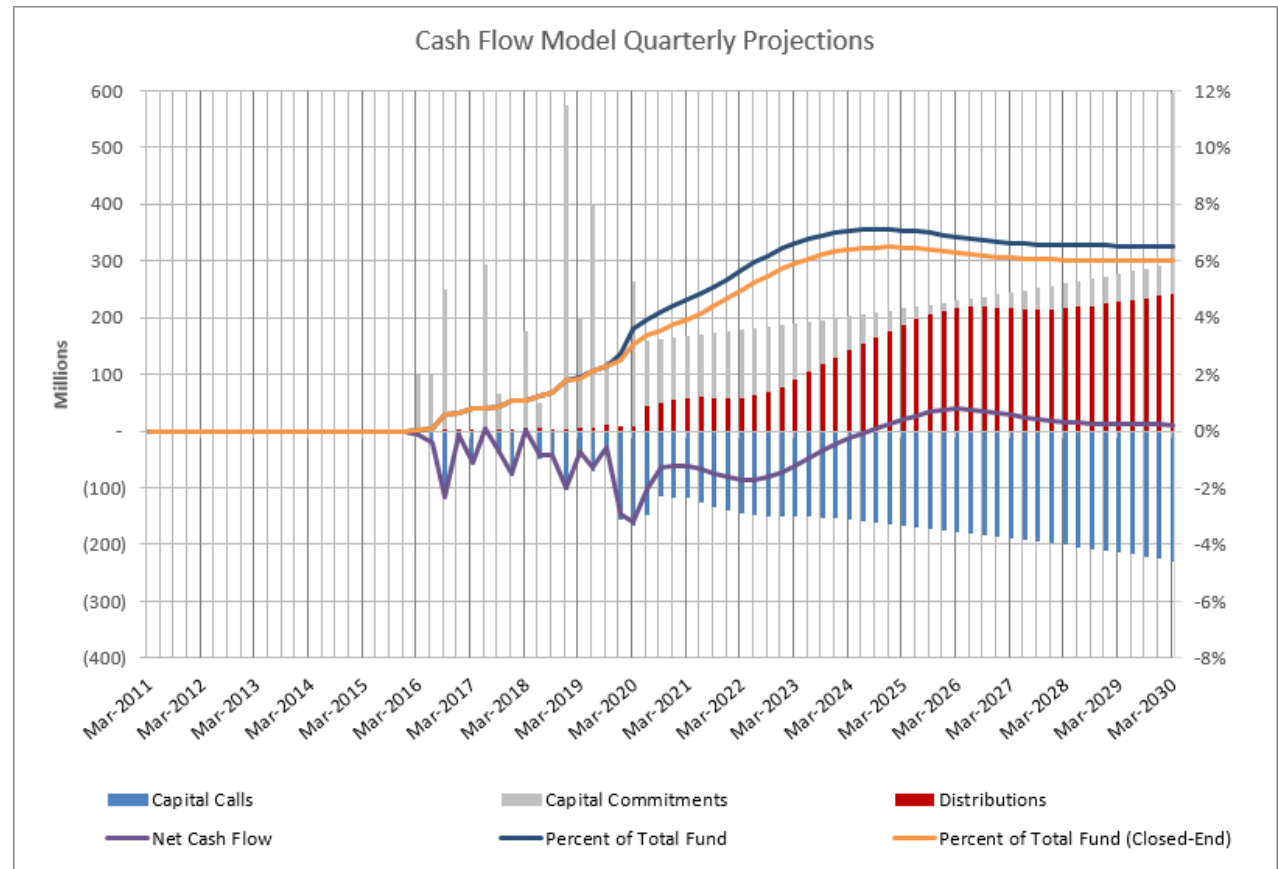
Procedural Oversight

Outcome Measurement

Implementation

Continued high levels of deployment into private assets will need to be made to achieve longer term allocation goals.

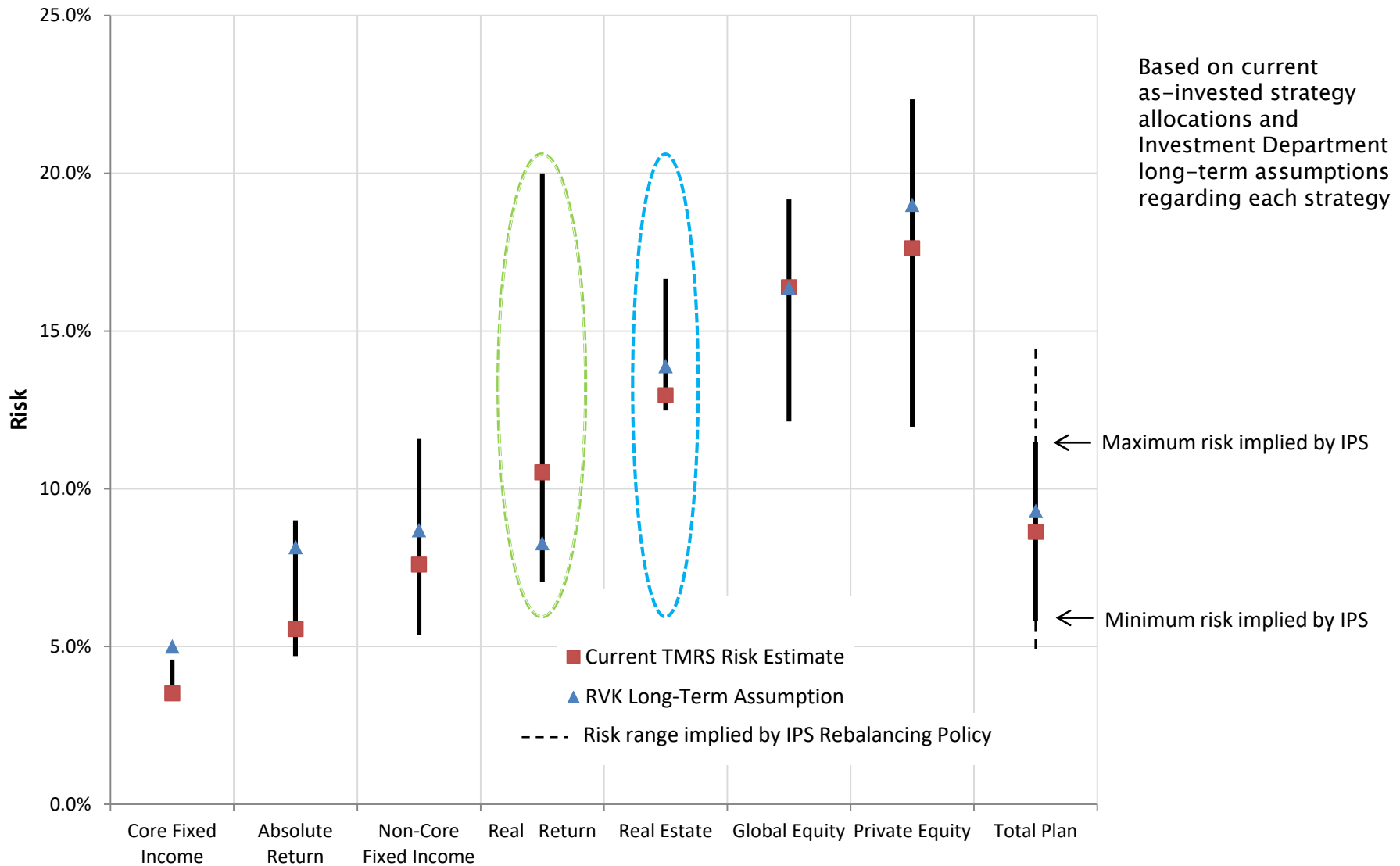
Private Real Return Pacing Model



Source: TMRS Risk Management Department

Implementation Risk Ranges Implied by IPS Asset Class Guidelines

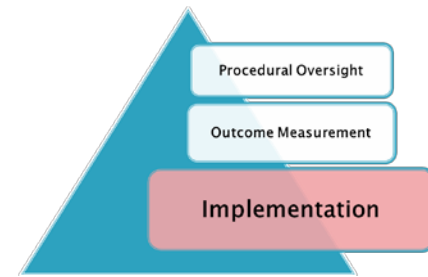
June 2020



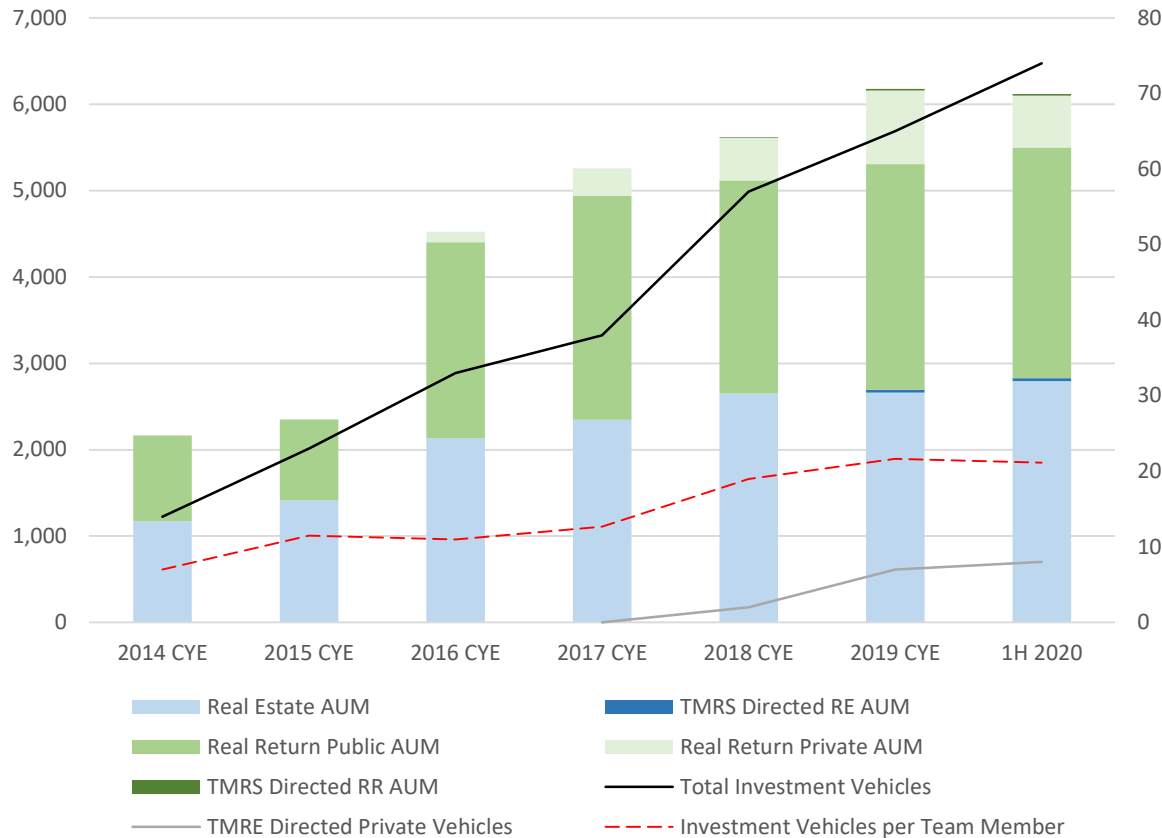
1. The risk range implied by the IPS Rebalancing Policy includes the ability to allocate 0–10% to Cash
2. RVK assumptions were updated in June 2020

Resource Assessment

Growing Roles of Private Assets & TMRS Directed Investments



Real Estate & Real Return AUM and Vehicle Counts



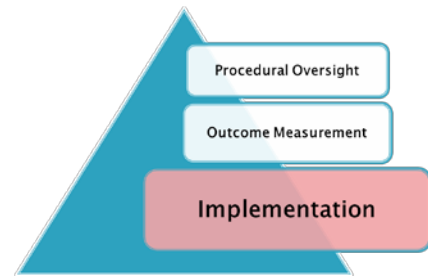
Private Assets & TMRS Directed Investment strategies are resource intensive.

While addition of new relationships may have already peaked, growth in management line items are expected to continue to grow.

The TMRS RE/RR team currently sits on 54 limited partnership advisory committees and in the last 12 months did 57 person days of travel.

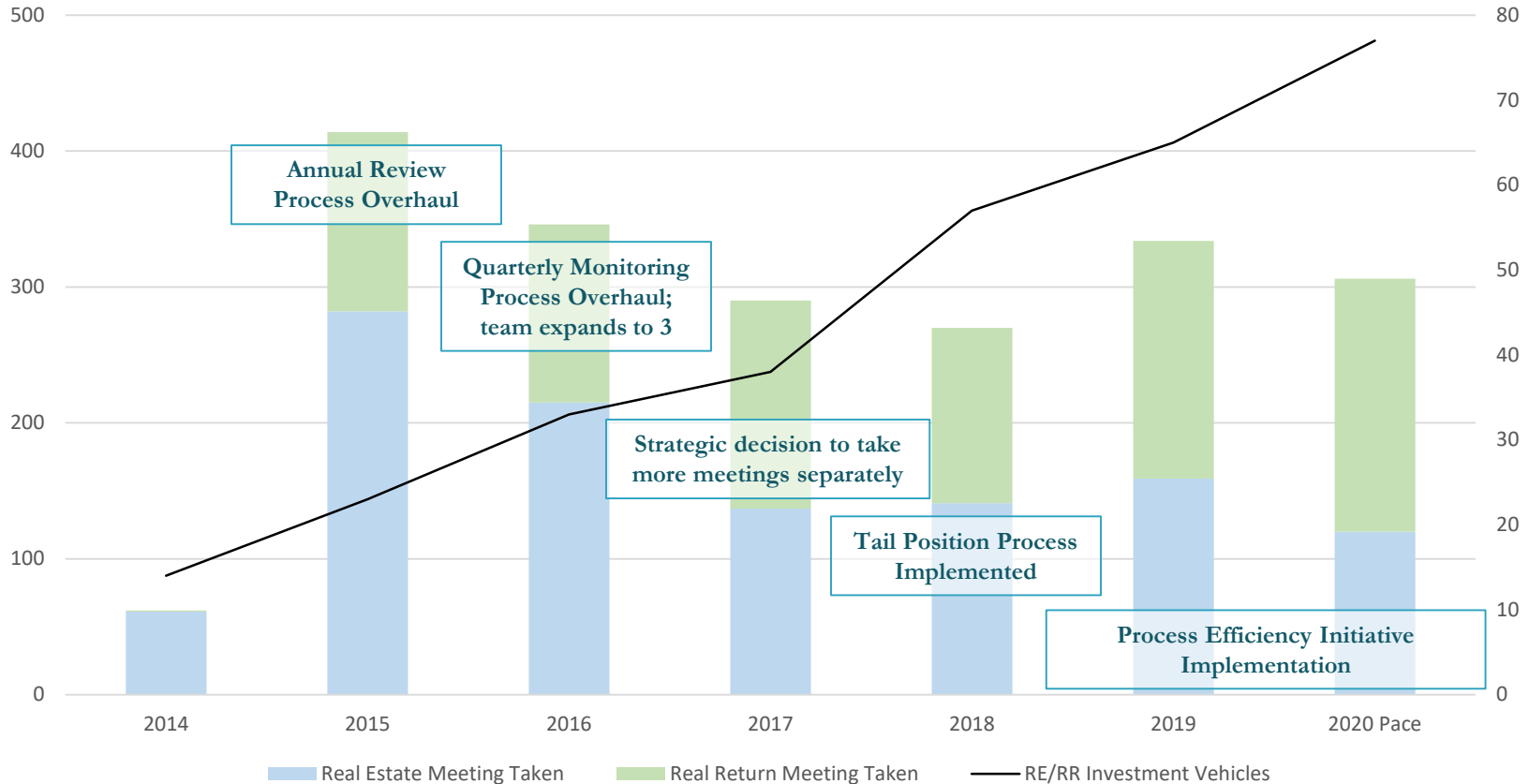
Resource Assessment

Tradeoffs Exemplified: Industry Engagement



Manager meetings & Vehicles Managed

Left Axis: Meetings; Right Axis: RE/RR Vehicles



The team is increasingly looking for efficiencies to maintain throughput.

Appendix I

MARKET UPDATE: REAL ESTATE

Market Update

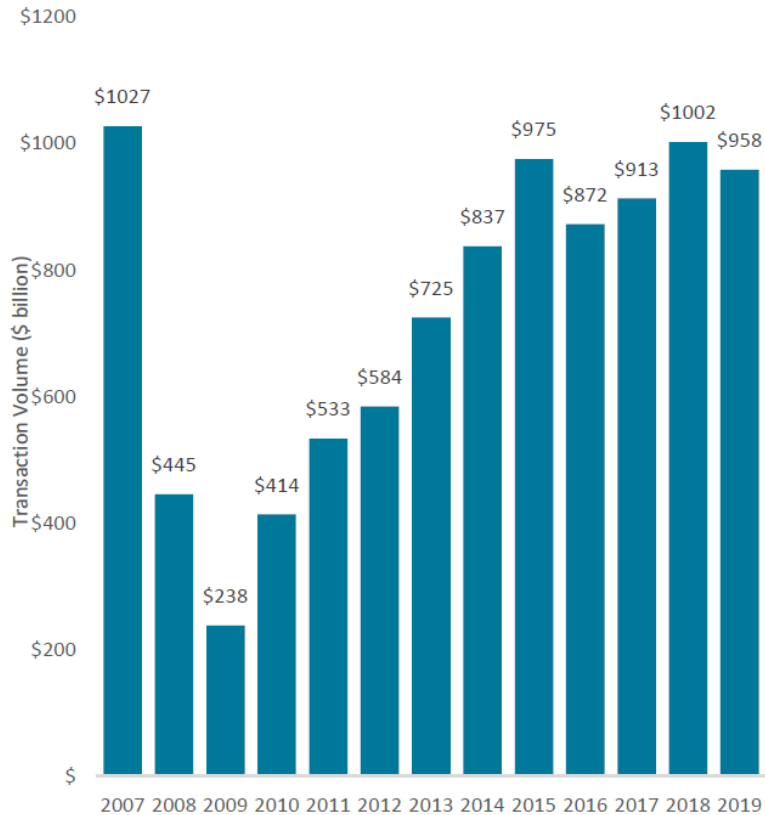
NCREIF ODCE Returns Since Inception



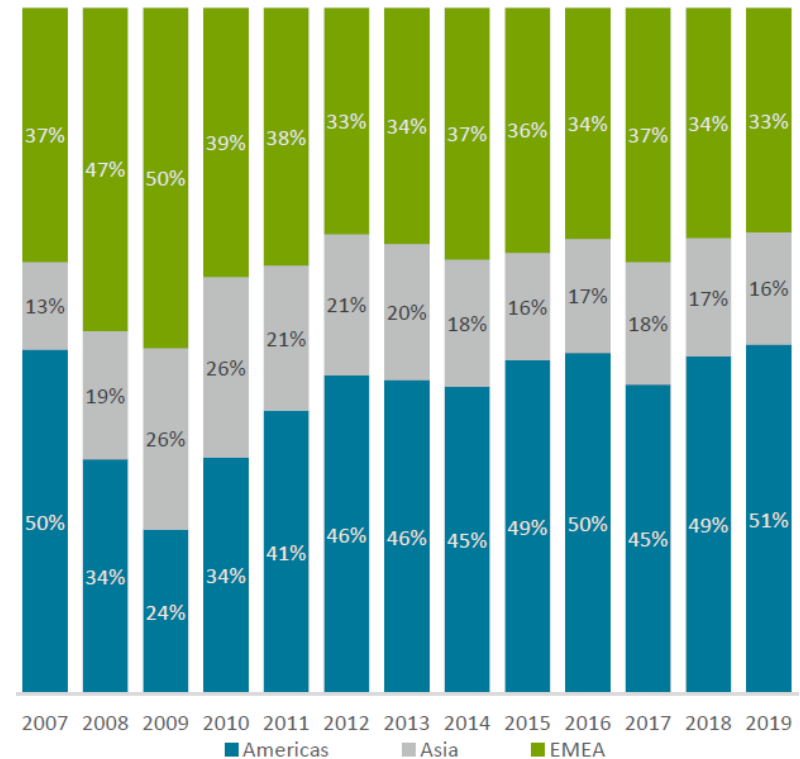
Leading into the COVID crisis of 2020 real estate returns had already begun compressing.

Market Update

Annual Global Transaction Volume



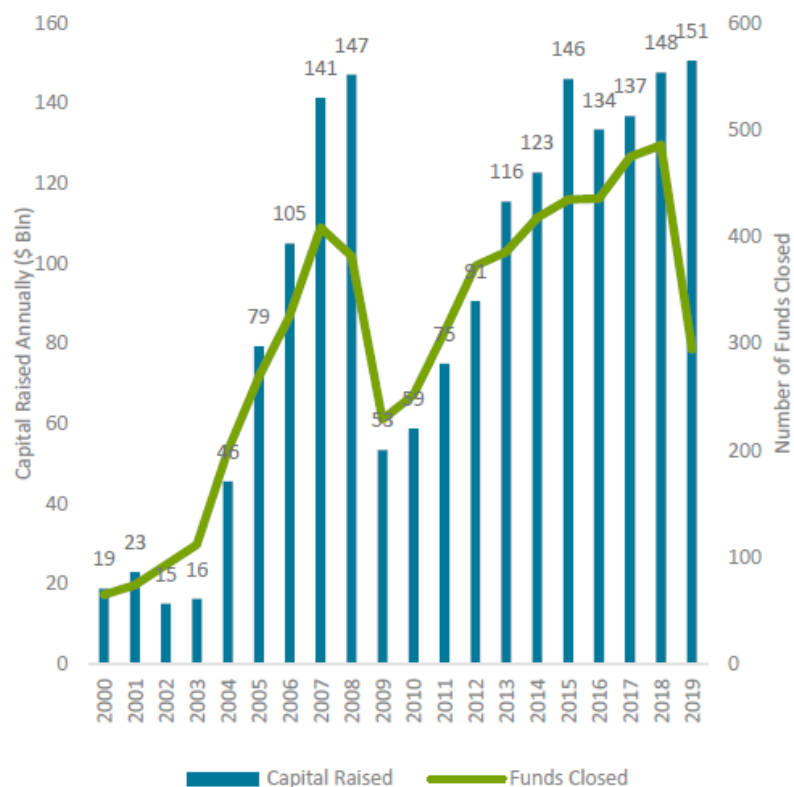
Regional Share of Global Transaction Volume



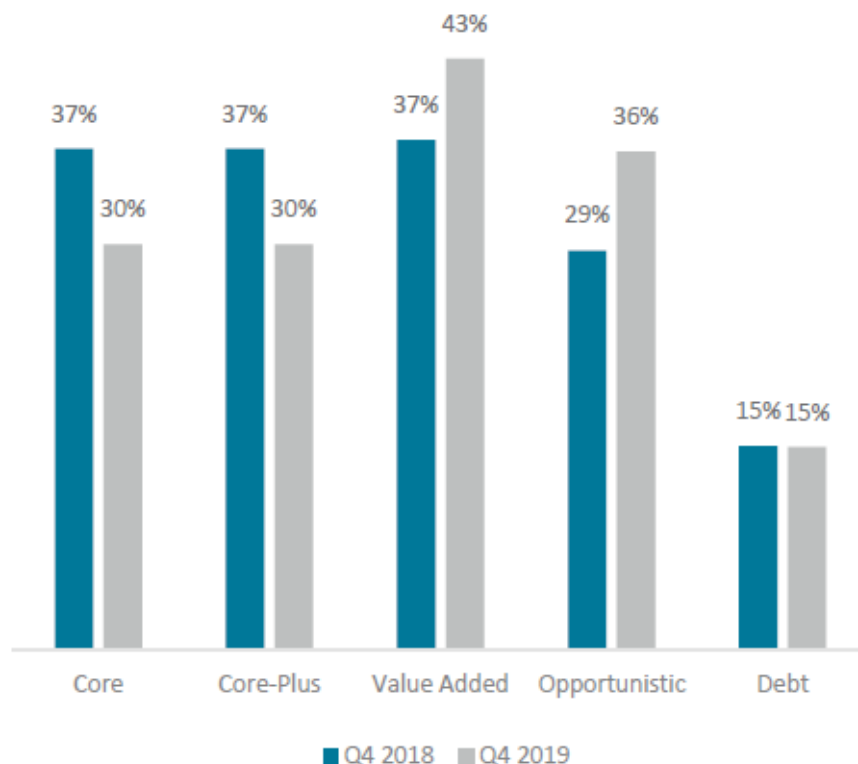
Transaction volumes seemed to have reached peak levels globally.

Market Update

Real Estate Funds Closed by Year

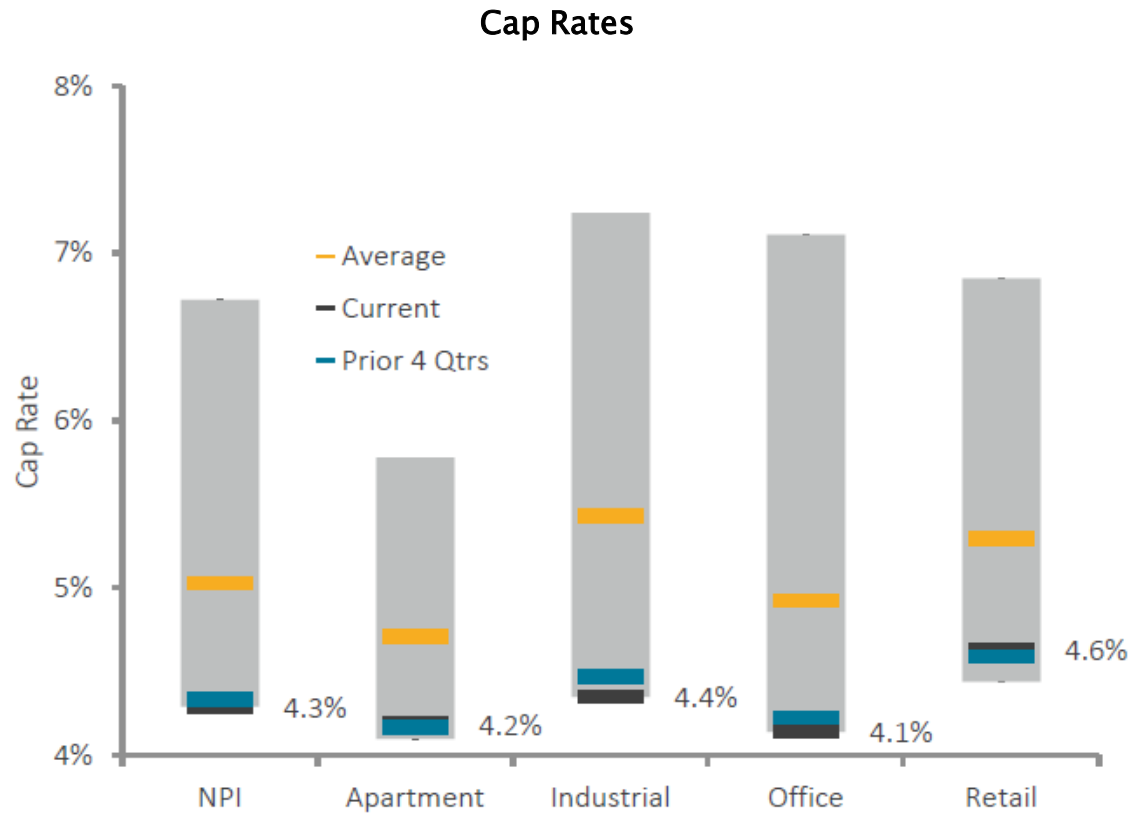


Investor's Targeted Commitments – By Strategy



Investors spent 2019 investing in larger, riskier funds than in 2018.

Market Update



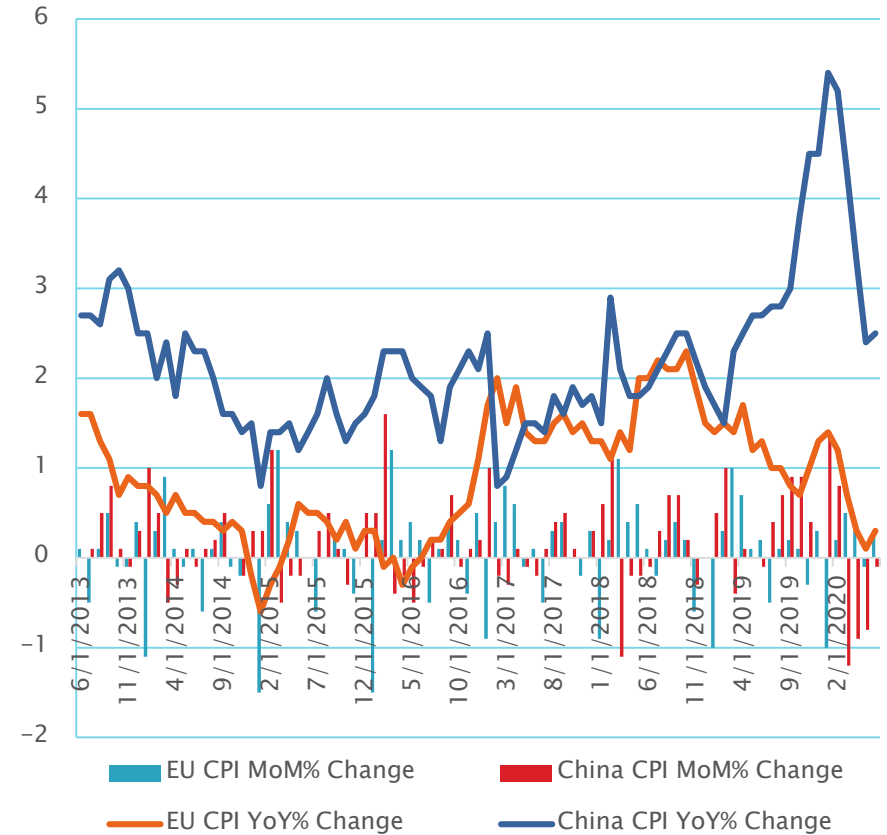
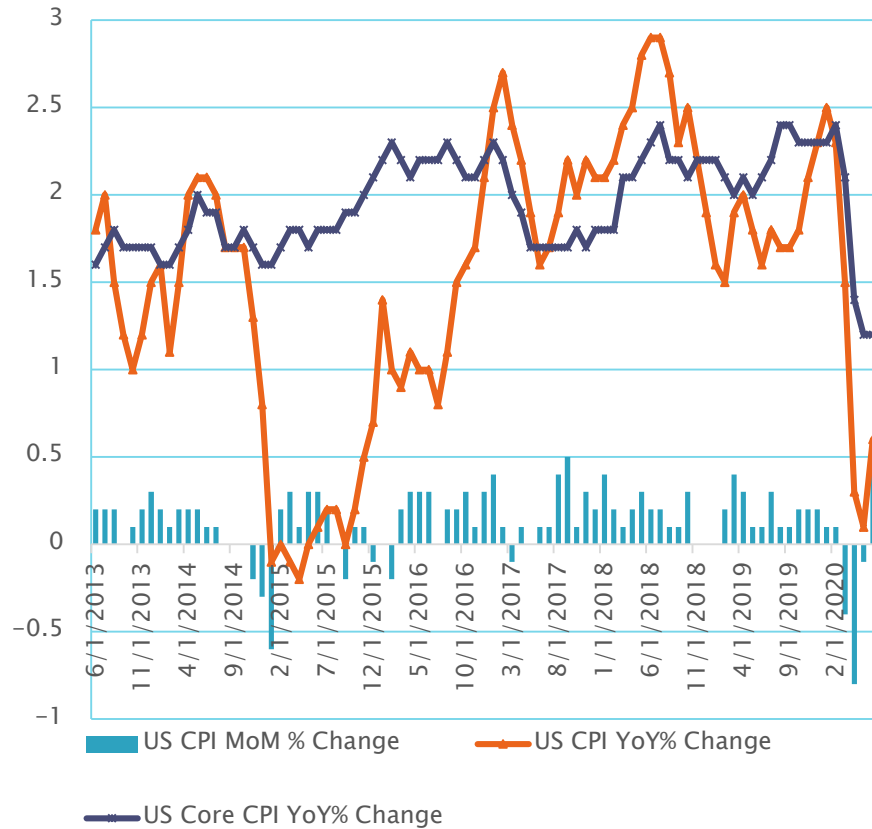
Valuations were at cyclical highs
at the end of 2019.

Appendix II

MARKET UPDATE: REAL RETURN

Market Update

Headline Inflation Data: US, EU & China

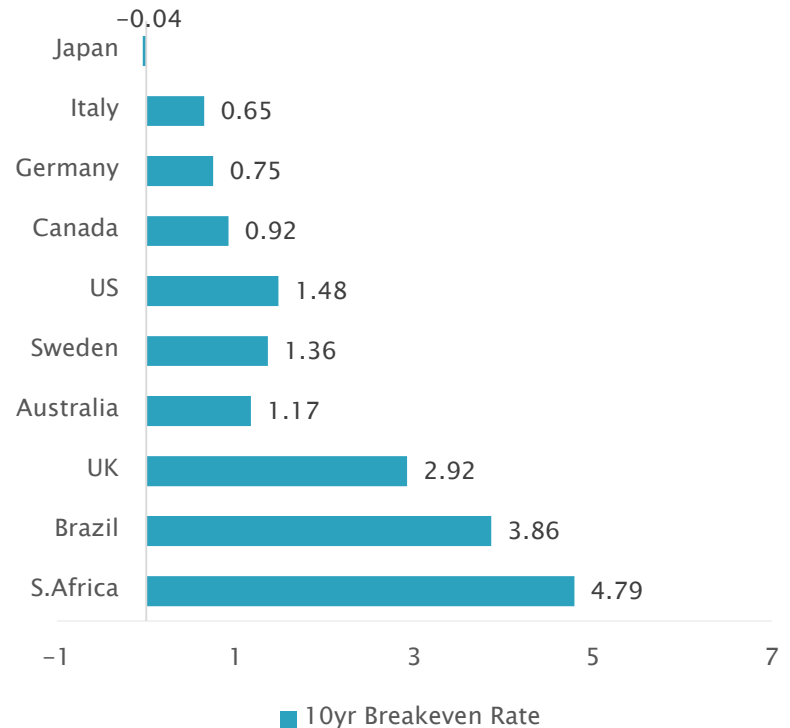
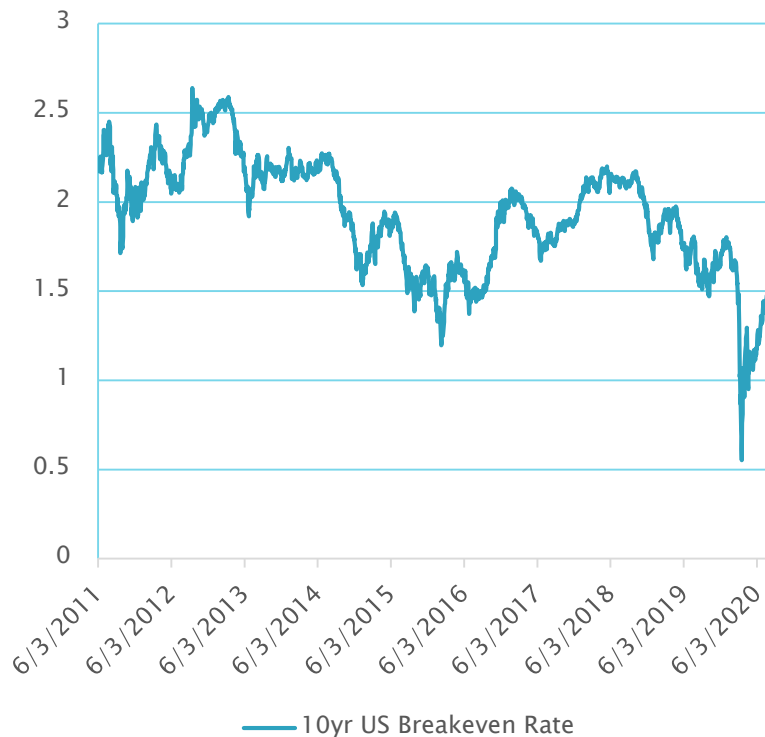


The COVID-Crisis has led to drastic downward swings in inflation globally.

Market Update

Inflation Expectations: TIPS & GILBs Breakevens

Breakevens provide a snapshot of what the fixed income market is currently predicting for inflation.

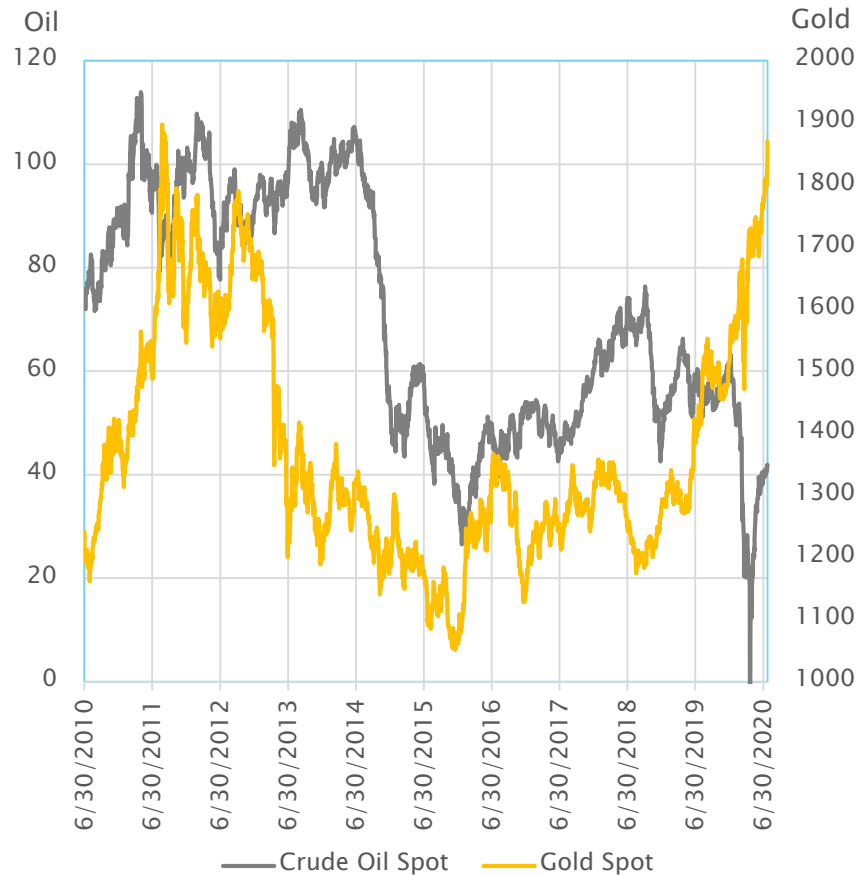


*Data source: Bloomberg

Note: Breakevens are the difference in the yield between a nominal and inflation

Market Update

Foreign Exchange & Commodity Trends`



The inverse relationship between the USD and commodities continued while gold and oil disconnected from historical correlations.

DISCLOSURES

TMRS periodically discloses public information that is not excepted from disclosure under Section 552.0225(b) of the Texas Public Information Act. Information provided by a manager, a Managing General Partner (GP), any of its Associates or other data provider to TMRS or a TMRS service provider, and contained in these materials (i) may have been independently produced or modified by TMRS or the TMRS service provider; (ii) has not been reviewed or approved by the manager, Managing GP or any of its Associates; and (iii) may not reflect the historical performance or asset value reflected in the manager's, Managing GP's or any of its Associates' records and, therefore, should not be used for comparative purposes.