

November 17-18, 2014

2014 Annual Training Seminar

Exploring TMRS



Investment Update

T. J. Carlson, Chief Investment Officer



Investment Topics

- Performance and Asset Allocation
- Public Equities
- Fixed Income
- Real Estate
- Real Return
- Absolute Return
- Private Equity
- Compliance
- Risk Management



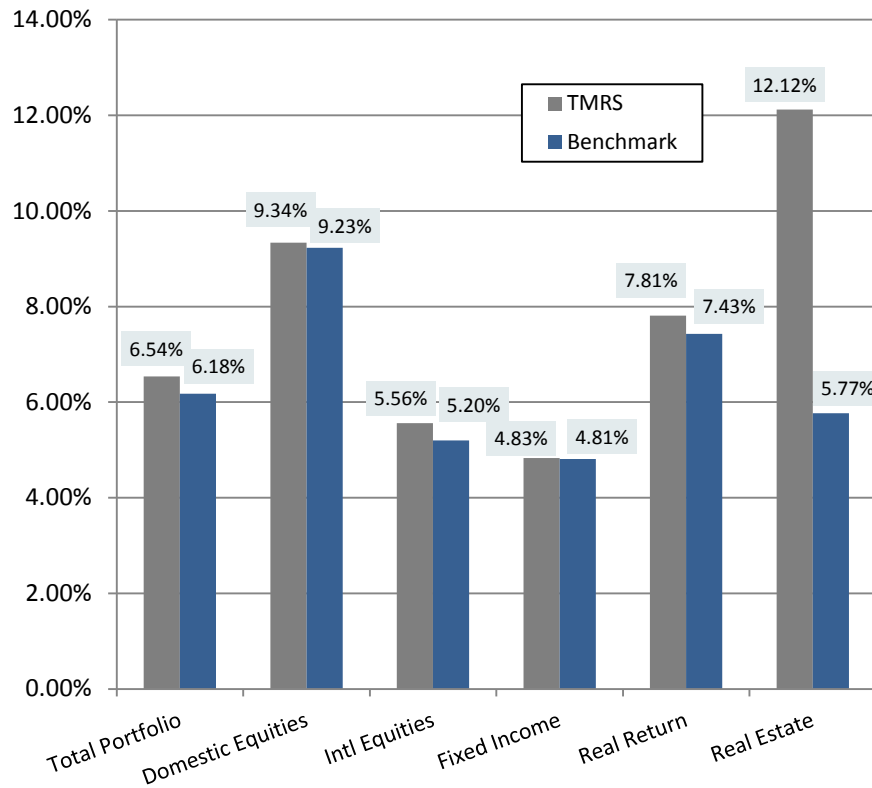
Performance and Asset Allocation



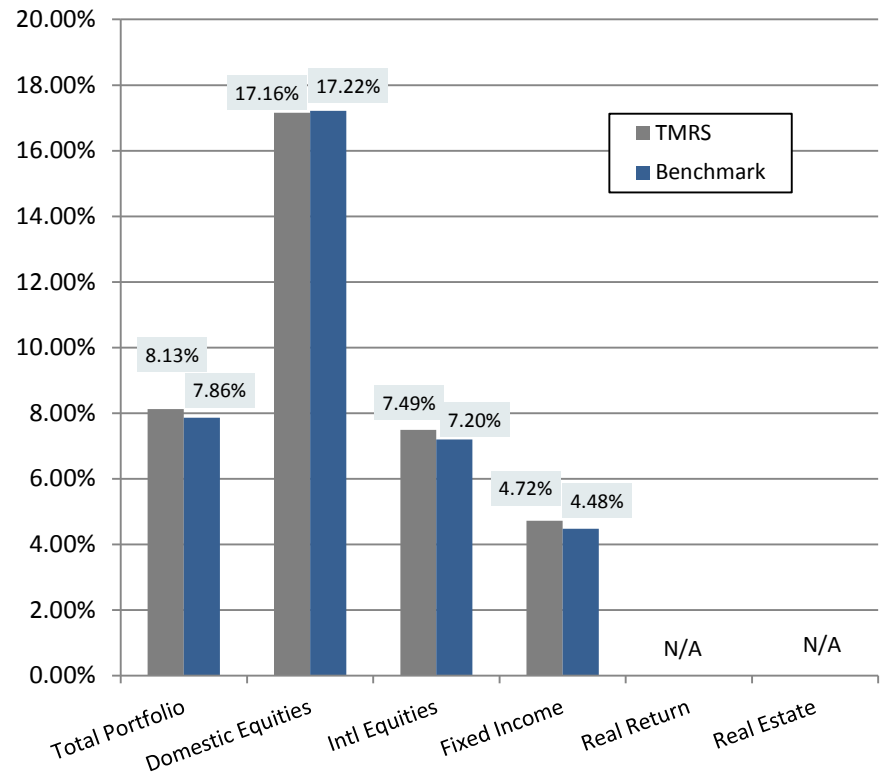
TMRS PERFORMANCE BY ASSET CLASS

August 2014

YTD as of 8/31/14*



5 Year Performance*



* Gross returns; Real Estate returns are reported on a quarter lag basis.

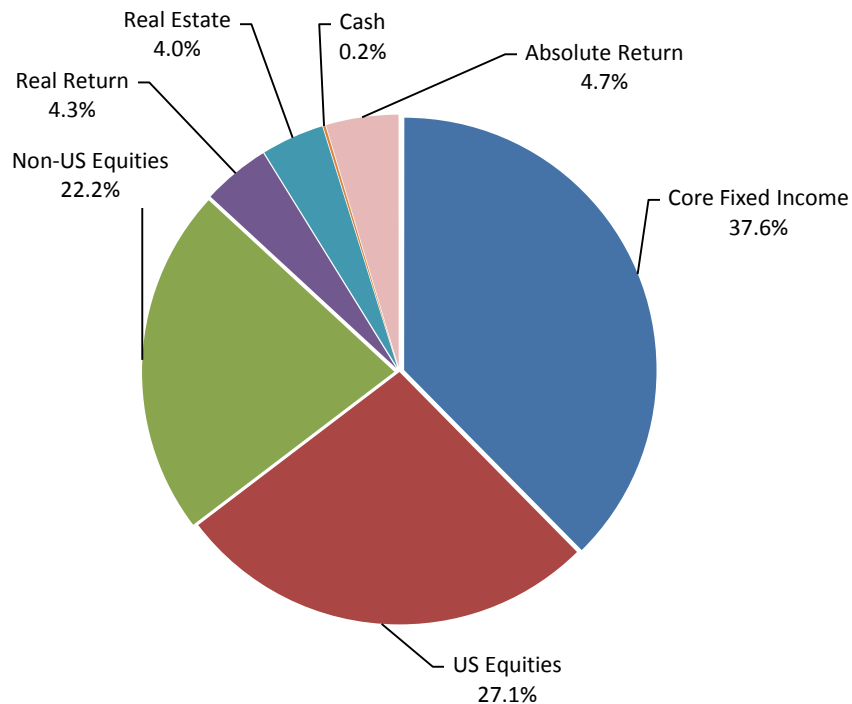
SOURCE: State Street Investment Analytics

TMRS INVESTMENT PORTFOLIO

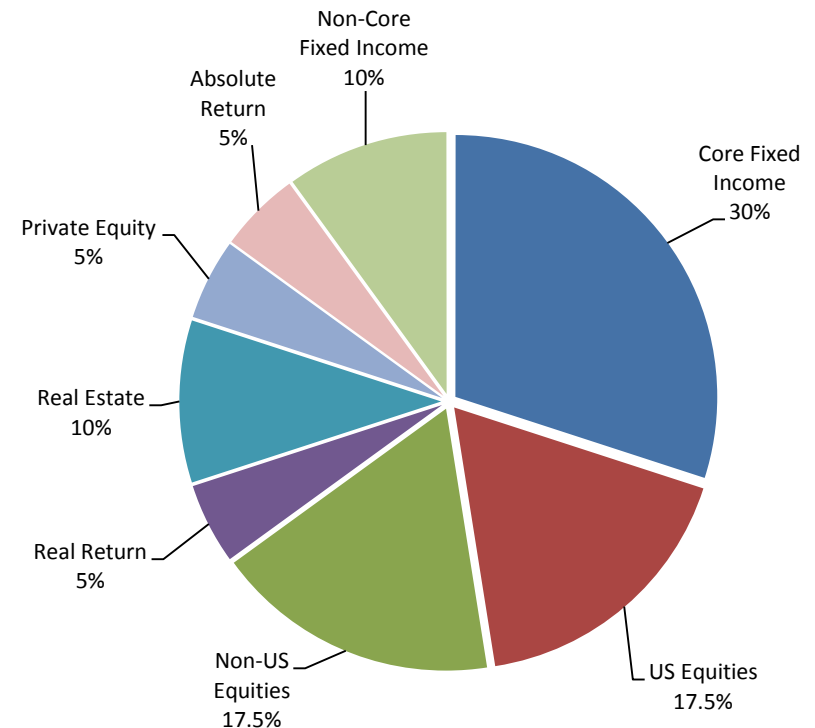
Asset Allocation



Current Allocation as of 8/31/14*



Target Allocation Adopted Aug 2012



Total Market Value: \$23.8 Billion

*Cash equivalents allocation represents unallocated invested cash equivalent instruments.

NOTE: The sum of individual asset class allocations may not add up to 100% due to rounding.

SOURCE: State Street Investment Analytics



Public Equities

Equity Portfolio Overview



2008 - 2009

- In Jan. 2008, diversification began in a balanced approach monthly investing in passive commingled funds, Russell 3000 (US) lending fund & EAFE (Non-US) lending fund; target allocation was 12%; non-lending funds began in Nov. 2008, investment in lending funds ceased in 3rd qtr of 2008 due to sec lending market issues;
- Further equity diversification stopped at the end of 2008 in anticipation of HB360 legislation;
- In June 2009, TMRS started bi-monthly redemptions from lending funds to the non-lending funds;
- HB360 legislation passed in Jun. 2009; Jul. 2009, diversification continued into equities monthly;
- **12% allocation to equities in 2008 & 23% allocation in 2009; target allocation of 40%.**

2010 - 2011

- Market volatility causes completion of target allocation (40%) to be extended to Dec. 2011 from Dec. 2010;
- NTGI's bi-monthly redemptions for the lending funds was completed in June 2010;
- Diversification expands; conversion from EAFE to ACW ex. US IMI NL fund began in Aug. 2010;
- In 2011, investment staff begins analyzing additional strategies to further diversify the equity portfolio;
- Full conversion from EAFE to ACW ex. US IMI NL fund was completed in 2011;
- **33% allocation to equities in 2010; equity portfolio reached full target allocation of 40% in 2011.**

2012 - 2013

- Mar. 2012, Trustees approve core/satellite structure with initial allocation to rules-based strategies;
- Sept. 2012, Trustees approve selection of two managers for rules-based strategies, Fundamental Indexing and Minimum Volatility; Min Vol portfolios funded in Dec. 2012 & Fundamental Indexing funded in Jan. 2013;
- Sept. 2013, the Board approved Epoch and Sasco for U.S. All Cap (AC) active strategies for the satellite allocation of the equity portfolio; a 4% allocation was funded from the core portfolio in Dec. 2013.
- **42.7% allocation to equities in 2012; 40.7% core (passive), 2% satellite (active) rules-based strategies.**
- **48.6% allocation to equities in Dec. 2013; 42.4 core (passive), 6.2% satellite (active) strategies.**

2014

- Phase I non-U.S. manager recommendations (Lazard & Wellington) were approved by the Board at the March 2014 Board meeting; performance will begin in September.
- Phase II of the equity re-structure's focus is on U.S. mid-cap and non-U.S. emerging markets; the emerging markets search began in May 2014 and is currently in progress. Board recommendations will be presented at Sept. 2014 Board meeting.
- Phase II of the US Mid Cap managers recommendations (The Boston Company and Champlain) were approved by the Board at the June 2014 Board meeting; implementation is underway.
- **49.3% allocation to equities in August 2014; 41.2% core (passive), 8.1% satellite (active) strategies.**



Core/Satellite Structure Allocation

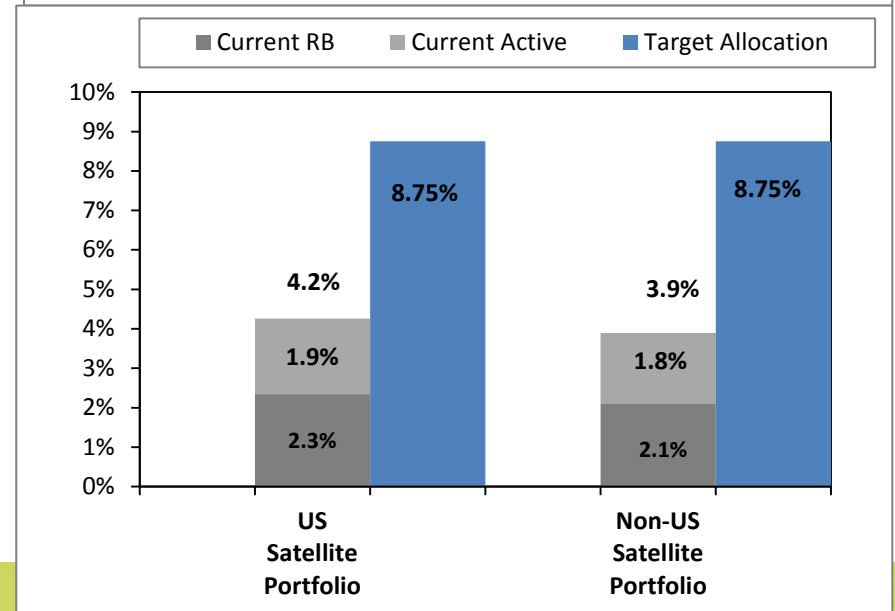
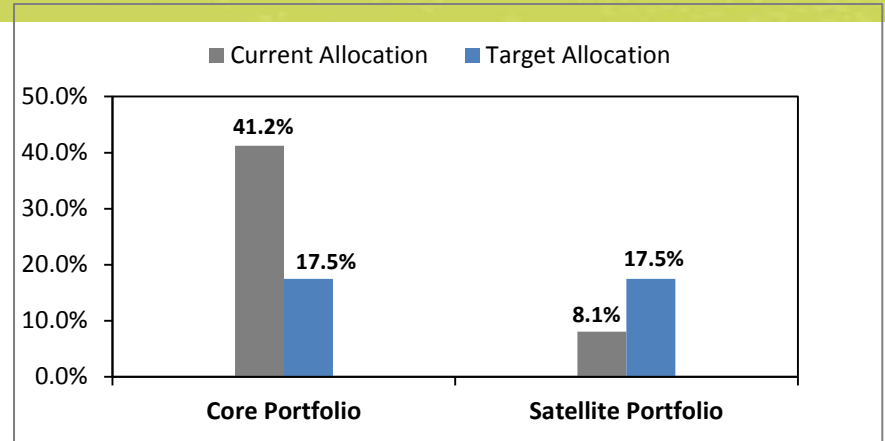
% of Total Fund as of 8/31/2014

CORE PORTFOLIO MGRS

Mandate	Market Value	% of Total Portfolio
US EQUITY: NTGI Russell 3000	5,419,907,751	22.8%
NON-US EQUITY: NTGI ACW ex. US IMI	4,370,447,347	18.4%
TOTAL:	\$9,790,355,098	41.2%

SATELLITE PORTFOLIO MGRS

Mandate	Market Value	% of Total Portfolio
US EQUITY: UBS US Minimum Vol	271,057,243	1.1%
SSgA US Fundamental	284,781,543	1.2%
Epoch US Choice	222,582,186	0.9%
Sasco US Contrarian Value	231,413,819	1.0%
NON-US EQUITY: UBS World ex. US Min Vol	253,241,450	1.1%
SSgA Global ex. US Fundamental	246,987,988	1.0%
Wellington Intl Horizons	202,215,149	0.9%
Lazard Intl Equity Plus	202,697,048	0.9%
TOTAL:	\$1,914,976,427	8.1%



NOTE: Percentages may not be exact due to rounding; State Street Analytics as of 8/31/14



PORTFOLIO MANAGEMENT STRUCTURE

Domestic and International Equities

ASSET CLASS	STRATEGY	MANAGER	PORTFOLIO BENCHMARK
Domestic Equities US Core/Passive	Passive Broad Market Index	Northern Trust Asset Management	Russell 3000
US Rules-Based	Passive Fundamental Index	State Street Global Advisors	Russell Fundamental Index US
US Rules-Based	Passive Minimum Volatility	UBS Global Asset Management	MSCI US Min Vol Index
US Satellite/Active	US Traditional All Cap	Epoch Investment Partners, Inc.	Russell 3000
US Satellite/Active	US Opportunistic All Cap	Sasco Capital, Inc.	Russell Mid Cap Value Index
US Satellite/Active	US Mid Cap Opportunistic	The Boston Company	Russell Mid Cap Index
US Satellite/Active	US Mid Cap Core	Champlain Investment Partners	Russell Mid Cap Index
International Equities Non-US Core/Passive	Passive Broad Market Index	Northern Trust Asset Management	All Country World (ACW) ex US Investable Market Index (IMI)
Non-US Rules-Based	Passive Fundamental Index	State Street Global Advisors	Russell Fundamental Global ex US
Non-US Rules-Based	Passive Minimum Volatility	UBS Global Asset Management	MSCI World ex US Min Vol Index
Non-US Satellite/Active	Non US Opportunistic Relative Value	Wellington Management <i>(performance will begin Sept.)</i>	MSCI ACWI ex US Index
Non-US Satellite/Active	Non US Opportunistic Core	Lazard Asset Management <i>(performance will begin Sept.)</i>	MSCI ACWI ex US Index



Fixed Income



Core Fixed Income Allocation

US Core Fixed Income

- Objective
 - Purpose is to enhance total return and provide diversification to the overall investment portfolio.
 - Performance objective is to exceed the Barclay's US Aggregate Bond Index net of fees and rank in the 50th percentile of peer universe, both over rolling 5-year periods and within tracking errors as specified in the manager contracts.
- Investment Philosophy - BlackRock
 - Top down determination of investment themes are based on bottom-up inputs. Investment themes establish parameters for sector, sub-sector and security selection. Macro overlays for duration and volatility are viewed as a separate sector and used opportunistically.

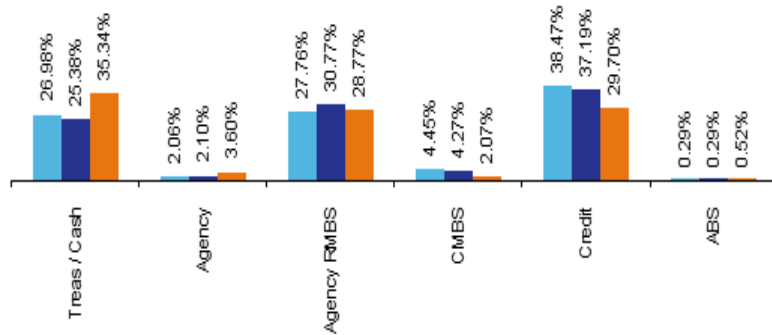
BlackRock Core Fixed Income

Texas Municipal Retirement System
As of: 31-August-2014

Base Currency: USD

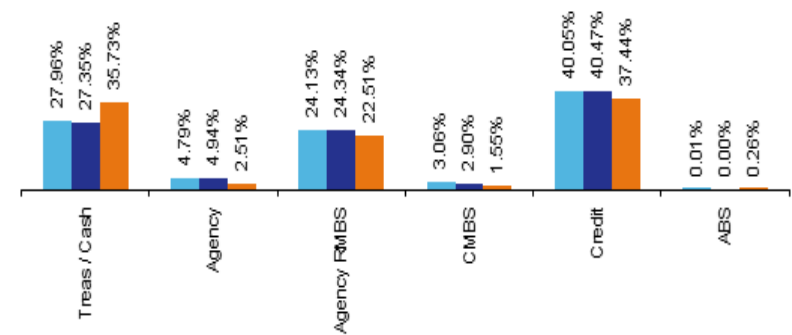


Sector Allocation (% NAV)



■ Fund as of 31-Jul-2014 ■ Fund as of 31-Aug-2014 ■ Benchmark as of 31-Aug-2014

Sector Allocation (% Duration)



■ Fund as of 31-Jul-2014 ■ Fund as of 31-Aug-2014 ■ Benchmark as of 31-Aug-2014

Risk Characteristics

	Fund	Benchmark
Duration	4.82	5.18
Convexity	(0.09)	0.02
Nominal Yield	2.11	2.13
Average Credit Quality	Aa2/AA	Aa2/AA
Portfolio Market Value	6,913,031,309.84	

Credit Quality

	Fund	Benchmark
Govt Equiv	59.05%	68.18%
AAA	9.44%	4.61%
AA	6.25%	5.64%
A	18.54%	12.74%
BBB	5.93%	8.83%
NR	0.14%	0.00%
Cash and Equivalents	0.65%	0.00%



Core Plus Fixed Income Allocation

Core Plus Fixed Income

- Objective
 - Purpose is to enhance total return and provide diversification to the fixed income asset class and the total portfolio.
 - Performance objective is to exceed the Barclay's Aggregate Index by 35 bps net of fees with a maximum expected tracking error of 150 bps and rank in the 50th percentile of peer universe, both over rolling 5-year periods.
- Investment Philosophy - PIMCO
 - PIMCO's investment philosophy is driven by diversifying strategies and focuses on longer term secular (3-5 year) trends.
 - Seek to add value through top down strategies including interest rate exposures, duration, volatility, yield curve positioning and sector rotation.
 - Employ "bottom-up" strategies through in-depth credit analysis and specific security selection.



PIMCO Core Plus Fixed Income

Flash Report As of August 31, 2014

Summary Information

Net Market Value	2,022,332,093 USD
Estimated Income	57,655,412 USD
Effective Duration - PIMCO New (yrs) ²	4.97 yrs
Effective Duration - PIMCO Previous (yrs)	5.03 yrs
Benchmark Duration - Provider (yrs)	5.61 yrs
Benchmark Duration - PIMCO (yrs)	5.29 yrs
Current Yield	2.85 %
Estimated Yield To Maturity	2.31 %
Effective Maturity ³	6.15 yrs
Average Coupon ³	3.01 %
Average Quality	AA-

	Portfolio Before Fees	Portfolio After Fees	Benchmark ¹
YTD	4.73%	4.57%	4.81%
1 Month	1.03	0.98	1.10
3 Months	0.72	0.67	0.90
6 Months	2.53	2.43	2.74
9 Months	3.86	3.71	4.22
12 Months	5.67	5.46	5.66
2 Years*	1.43	1.23	1.51
3 Years*	3.49	3.28	2.91
5 Years*	N/A	N/A	N/A
10 Years*	N/A	N/A	N/A
Since Inception Nov 30, 2009*	4.65%	4.45%	4.00%
Tracking Error (3 Years)	0.70		
Information Ratio (3 Years)	0.80		

PORTFOLIO MANAGEMENT STRUCTURE

Fixed Income



ASSET CLASS	STRATEGY	MANAGER	PORTFOLIO BENCHMARK
Core Fixed Income	US Core (enhanced index)	BlackRock	Barclays US Aggregate Bond Index
	Active Core Plus	PIMCO	Barclays US Aggregate Bond Index
Non-Core Fixed Income	Bank Loan/CLO Debt	Credit Suisse (contract pending)	Credit Suisse Leveraged Loan Index
	Bank Loan/CLO Debt	Highland Capital	Credit Suisse Leveraged loan Index
	Bank Loan/CLO Debt	Guggenheim	Credit Suisse Leveraged Loan Index
	RMBS/CMBS	Voya Investment Management (formerly ING Investment Mgmt) <i>(contract pending)</i>	33% Barclays US Agg Corp Index and 67% Barclays US Corp High Yield Index
	RMBS/CMBS	Marathon Asset Management <i>(contract pending)</i>	33% Barclays US Agg Corp Index and 67% Barclays US Corp High Yield Index
	RMBS/CMBS	Ellington Management Group <i>(contract pending)</i>	33% Barclays US Agg Corp Index and 67% Barclays US Corp High Yield Index
Securities Lending	Emphasizes the lending of "Intrinsic Value" securities; minimizes future cash collateral reinvestment risk	Deutsche Bank	N/A

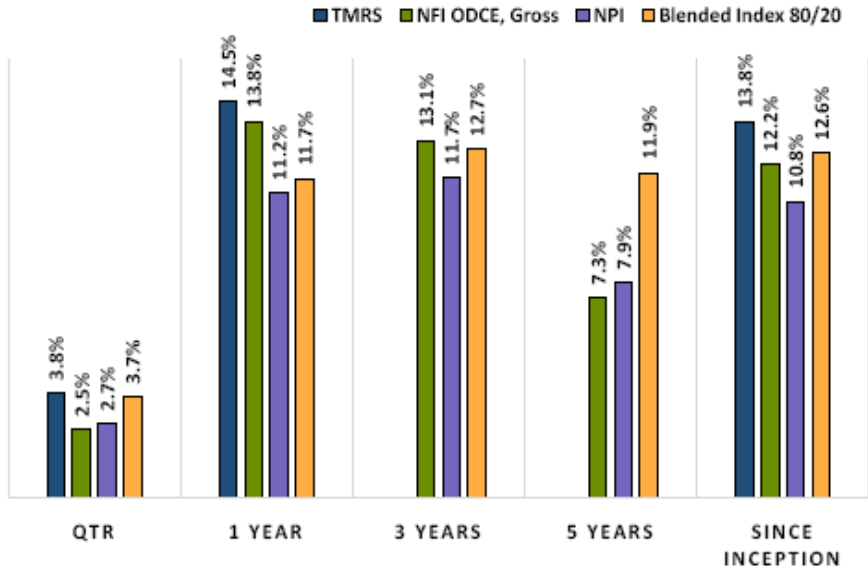


Real Estate

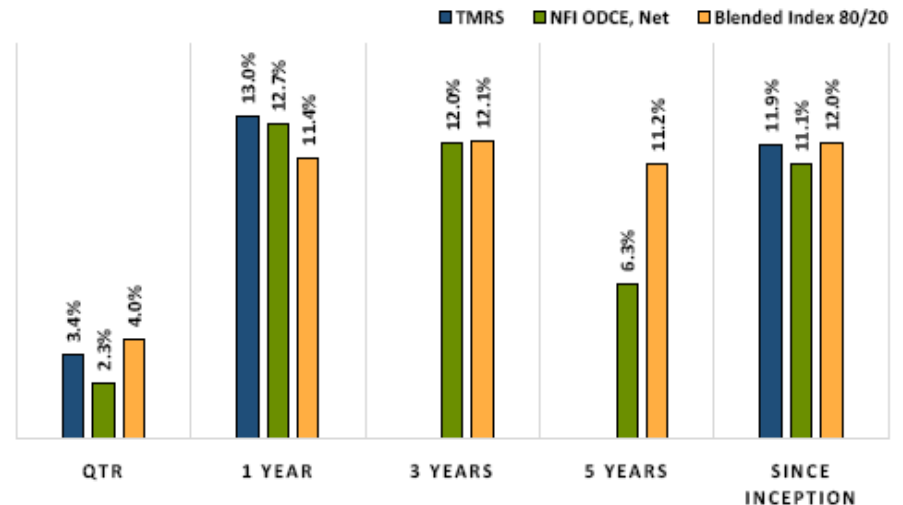


Real Estate Q1 2014 Performance

Investment Returns—Time Weighted, Gross of Fees



Investment Returns—Time Weighted, Net of Fees



Financial Highlights At March 31, 2014

	Market Value	Percent of Fund
Portfolio Market Value	\$842,247,434	3.7%
Current Unfunded Commitments	\$721,204,441	
Total Market Value and Unfunded Commitments	\$1,563,451,875	6.9%
Total Fund Market Value	\$22,760,589,949	
Total Allocation to Real Estate	\$2,276,058,995	10.0%
Total Loan-to-Value Ratio	45.8%	

Compliance

- The TMRS Real Estate portfolio is in compliance with the Investment Policy which permits over concentrations during the initial investment phase of the real estate program.

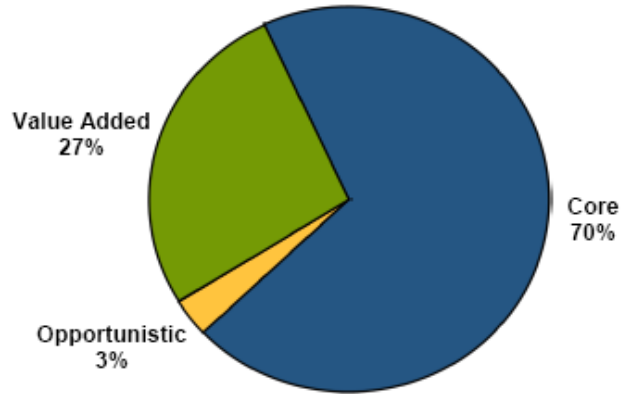
Compliance with Policy:



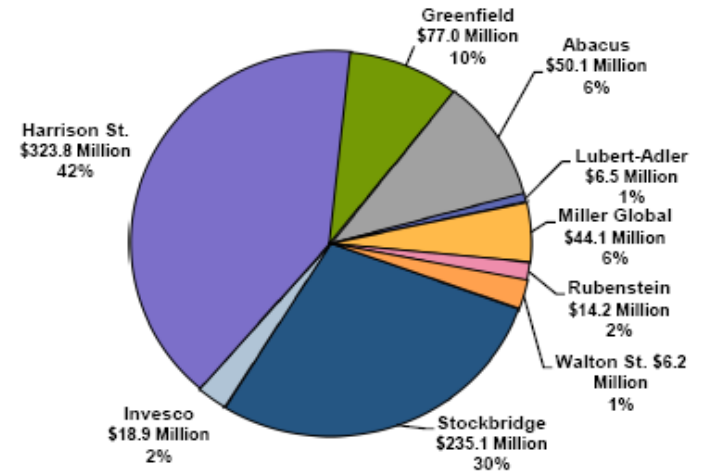
Source: ORG

Real Estate Portfolio Diversification - Q1 2014

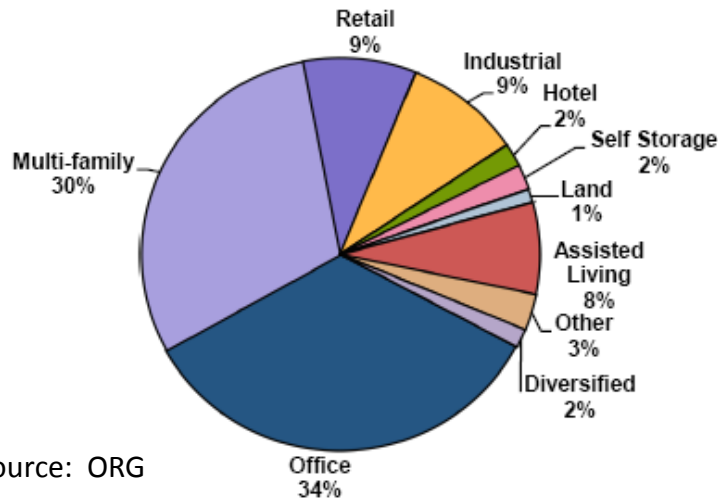
Strategy Diversification by Market Value



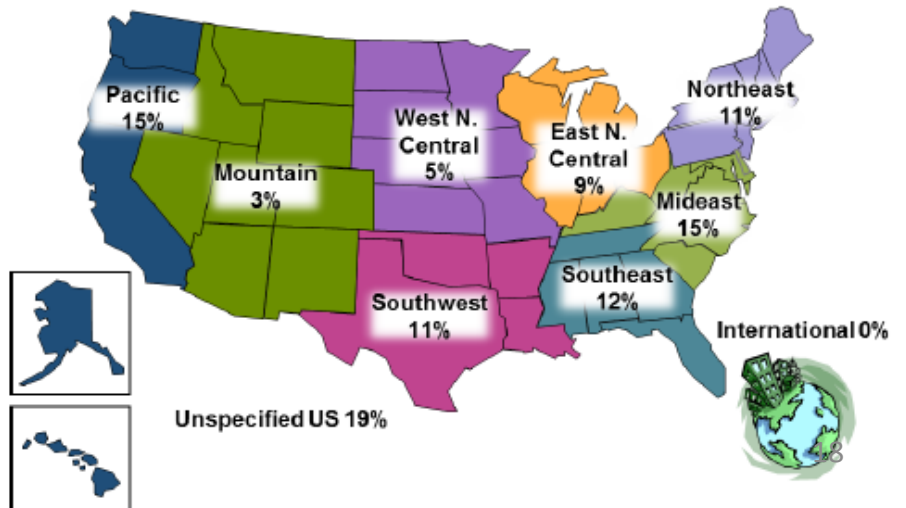
Manager Diversification by Market Value



Property Type Diversification by Market Value



Geographic Diversification by Market Values



Source: ORG



PORTFOLIO PACING PLAN UPDATE

Real Estate

ASSET CLASS	COMMENTS
Real Estate	As of Q1 2014, \$1.5 Billion committed/allocated and \$753 million invested. 2014 Real Estate Pacing Plan adopted for up to \$600 million in Core, Value-Add and/or Opportunistic investments.



Real Return



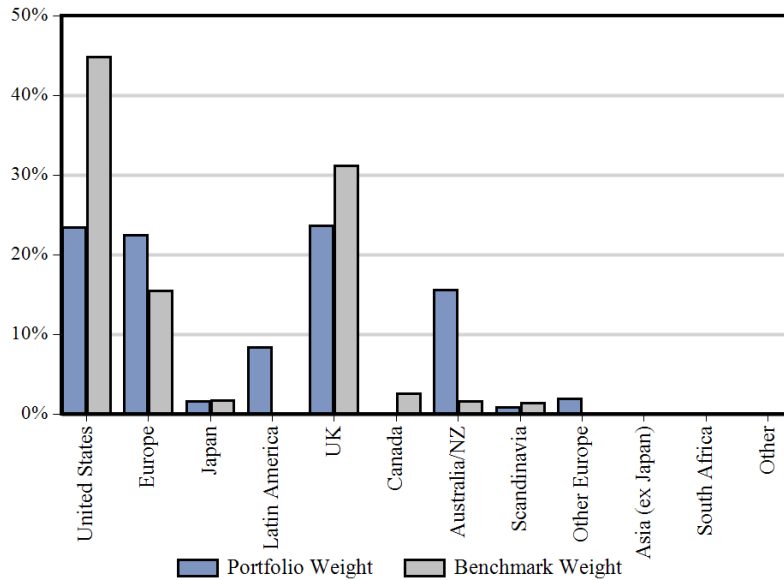
Colchester Portfolio Characteristics & Performance

August 2014

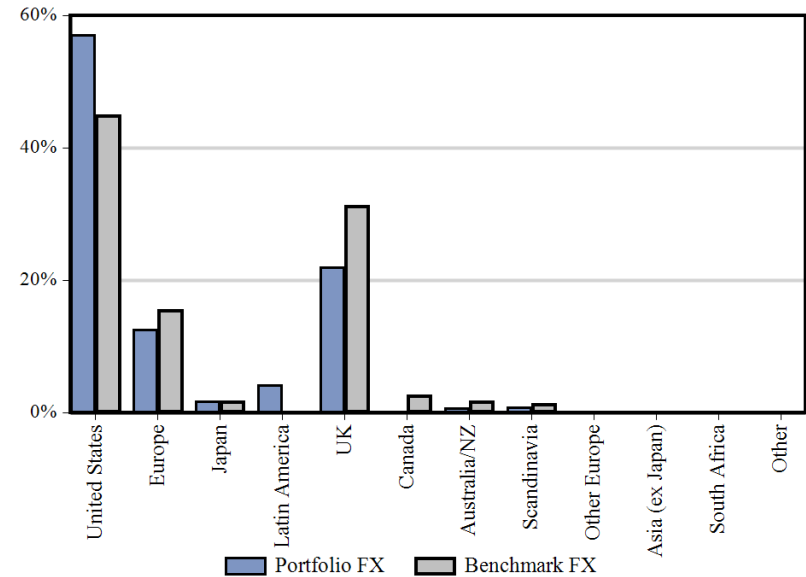
Portfolio	2011	2012	2013	2014	SI ^{2,3}
Gross Returns	7.09%	10.79%	-4.15%	7.86%	5.87%
Benchmark ¹	9.99%	6.95%	-4.84%	7.43%	5.29%
Relative Gross	-2.90%	3.85%	0.69%	0.43%	0.59%

YTD Returns	Q1:14	Q2:14	Jul	Aug	YTD
Gross Returns	2.56%	3.93%	-0.25%	1.44%	7.86%
Benchmark ¹	2.67%	3.67%	-0.42%	1.35%	7.43%
Relative Gross	-0.11%	0.27%	0.17%	0.09%	0.43%

Country Exposure (%)



Currency Exposure (%)



Source: Colchester

1. Barclays World Government Inflation-Linked Bond Index USD Unhedged
2. TMRS inception date Feb. 1, 2011
3. Annualized returns since inception



PORTFOLIO MANAGEMENT STRUCTURE

Real Return

ASSET CLASS	STRATEGY	MANAGER	PORTFOLIO BENCHMARK
Real Return	Active Global Linkers	Colchester	Barclays World Govt Infl-Linked Bond Index



PORTFOLIO PACING PLAN UPDATE

Real Return

ASSET CLASS	COMMENTS
Real Return	Fully funded through Global Inflation-Linked Bond (GILB) strategy. Real Return transferred from Fixed Income to Real Estate in March 2014. At the June 2014 Board meeting, the Board approved Staff's recommendation to conduct a Real Return Consultant search. At the October 2014 Board meeting, the Board approved the selection of Albourne America as TMRS' Real Return Consultant.



Absolute Return



PORTFOLIO MANAGEMENT STRUCTURE

Absolute Return

ASSET CLASS	STRATEGY	MANAGER	PORTFOLIO BENCHMARK
Absolute Return	Customized Fund of One	Blackstone	HFRI Fund of Funds Multi-Strategy Index

PORTFOLIO PACING PLAN UPDATE

Absolute Return



ASSET CLASS	COMMENTS
Absolute Return	<p>Implementation strategy and authorization to begin manager search approved at Sept 2013 meeting. Manager recommendation (Blackstone) was approved at the February 2014 Board meeting and funded in August 2014. At the June 2014 Board meeting, the Board approved Staff's recommendation to conduct an Absolute Return Consultant search. At the October 2014 Board meeting, the Board approved the selection of Albourne America as TMRS' Absolute Return Consultant.</p>



Private Equity

- Educational session presented in August 2014
- Next scheduled session is in February 2015
- Targeted first investment by Q1 2016



Compliance



INVESTMENT GUIDELINE COMPLIANCE

August 2014

Policy Guidelines	Core Fixed Income	Core Plus Fixed Income	Real Return	Domestic Equities	Global Equities
Interest Rate Risk	✓	✓	✓	N/A	N/A
Credit Risk	✓	✓	✓	N/A	N/A
Liquidity Risk	✓	✓	✓	✓	✓
Sector Risk	✓	✓	✓	✓	✓
Concentration Risk	✓	✓	✓	✓	✓
Currency Risk	✓	✓	✓	✓	✓
Permissible/Prohibited Investments	✓	✓	✓	✓	✓

- 129 separate compliance tests were run on TMRS portfolios as of August 31. All funds were found to be in compliance with TMRS guidelines.



Risk Management



There Are Two Categories of Investment Risk

1. **Risk from active management** (including pace of implementation) **relative to Strategic Target Allocation**

- Key questions:
 - Are we within our Risk Budget?
 - Are we getting paid for the risk we take?
- Actual portfolio holdings versus benchmark holdings
- Current market risk environment

2. **Risk from Strategic Target Allocation (STA)**

- Key questions:
 - Does STA reflect what we believe about the market long term?
 - Does STA reflect our financial objectives and risk tolerance?
- Addressed by Asset/Liability studies and Asset Allocation reviews
- Asset Class Allocation
- Long term asset class risk assumptions

Total Fund Risk - Q2 2014



	BarraOne – One year outlook						RVK
	Portfolio			Policy Benchmark			Long Term Assumptions ¹
	Weight (%)	Risk	Contribution to Total Risk	Weight (%)	Risk	Contribution to Total Risk	Benchmark
							Risk
Total	100.00%	7.0	100.00%	100.00%	6.8	100.00%	10.2
Cash Assets	0.2%	0.0	0.0%	0.0%	0.0	0.0%	3.0
Equity - Non US	22.6%	14.5	43.7%	17.5%	13.6	31.8%	20.6
Equity – US	26.8%	13.5	47.8%	17.5%	14.7	34.7%	17.8
Fixed Income – Core	42.5%	3.7	4.2%	30.0%	3.9	2.8%	6.0
Fixed Income - Non-Core	0.0%	N/A	N/A	10.0%	5.5	5.8%	11.7
Real Estate	3.6%	8.6	2.6%	10.0%	12.5	9.6%	14.7
Real Return	4.3%	5.5	1.7%	5.0%	3.9	2.0%	8.5 ²
Absolute Return	0.0%	N/A	N/A	5.0%	6.2	2.0%	9.8
Private Equity	0.0%	N/A	N/A	5.0%	17.3	11.3%	29.0

NOTES:

1. RVK forward-looking risk assumptions as presented in the August 2014 Asset Allocation Study

2. Assumes a Real Return asset class benchmark of 100% Global Inflation Linked Bonds until the new Policy Benchmark is implemented

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2014 Annual Training Seminar

Exploring TMRS



QUESTIONS?

